The RUBBER AGE

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LATE NEWS of the Industry

Preliminary Statistics Indicate Decline in Tire Dealers' Stocks

PRELIMINARY reports of the annual spring survey of tire dealers' stocks of the Rubber Division of the United States Department of Commerce show that on April 1, 1930, 22,332 dealers held an average stock of only 75.1 automobile and truck casings, as compared with an average of 94.4 casings on April 1, 1929, and an average of 81.2 casings on April 1, 1928.

Dealers reporting stocks of high pressure casings were tabulated separately. Of these, 17,493 dealers reported 364,164 high pressure casings in stock or 20.8 per dealer. This compares with the 459,001 high pressure casings reported by 20,045 dealers on October 1, 1929, an average of 22.9 per dealer. There were no comparable statistics for April 1, 1929.

The number of inner tubes held by dealers averaged only 109 as compared with the figure of 143.5 for April 1, 1929, and the average of 123.4 for April 1, 1928. The total number of inner tubes reported thus far is 2,419,099, as against the final total of 3,577,892 on April 1 of last year.

The total number of automobile and truck casings shown by the preliminary report this year was 1,676,309, a sharp reduction from the figure of 2,383,907 casings reported a year ago. The drop, however, was mainly in high pressure casings which fell from 983,379 in 1929 to 364,164 this year. Balloon casings declined from 1,400,528 in 1929 to 1,312,145, but the final tabulation of late reports may bring the total up to that of last year. Balloon casings, which were only 58.8 per cent of the total of dealers' stocks last year, have risen to represent 78.3 per cent of the current total. In April, 1928, balloon casings constituted only 36.4 per cent of the total reported stocks.

There were 981 dealers who reported having stocks of solid tires, and their total of 23,959 indicated an average of 24.4 such tires per dealer. On April 1, 1929, 1,146 dealers reported 40,151 solid tires, an average of 35 per dealer.

In the past, the average stock per dealer figure of the preliminary report has been raised slightly after tabulation of late returns for the final report. For example, in October, 1929, the final average casings per dealer figure was 0.7 casings higher than the preliminary, and in April, 1929, the final average was 4.1 casings higher.

On October 1, 1929, the fall survey of dealers' tire carryover showed an average of 68.4 casings per dealer. While this figure is not strictly comparable to the 75.1 average of this month, it serves to indicate that retailers have not been buying so heavily this year as in past years. In the present October to April period, dealers' average stocks gained by only 6.7 casings, while in the period from October, 1928, to April, 1929, they rose 19.6 casings.

Complete questionnaires are still being received and a final and detailed report will be issued by the Rubber Division at the end of April, tabulating the returns by states, and will be published in the May 10th issue of THE RUBBER AGE.

Goodyear-United States Merger Denied By Cyrus S. Eaton and F. B. Davis, Jr.

DENIALS of a possible merger of the Goodyear Tire & Rubber Company and the United States Rubber Company were made during the fortnight by both Cyrus S. Eaton, who with Otis & Company holds a controlling interest in Goodyear, and F. B. Davis, Jr., president and chairman of United States. Mr. Eaton also is reported as considering a consolidation with the Seiberling Rubber Company as extremely remote.

That affiliation with these companies would weaken Goodyear's dominant position in the rubber industry is the stand the Eaton-Otis & Company group is said to have taken toward merger movements which have been going forward for several years. Mr. Eaton is said to be against any move which will bring into Goodyear any smaller and financially weaker firms.

In answer to a stockholder's question at the annual meeting of the United States Rubber Company, Mr. Davis said, "As far as the United States Rubber Company is concerned, we can see no present advantage in consolidation with any other rubber company. Our present efforts are being devoted to putting our own house in order."

While merger talk in connection with Goodyear was on the wane, rumors of action on the part of the B. F. Goodrich Company to absorb the Fisk Rubber Company, of Chicopee Falls, Mass., were revived. A news story in the Akron *Times-Press* states that "Goodrich officials, after turning down offers of the Massachusetts company, according to reports, have taken the initiative to the end of bringing it under the wing of the Akron company. The Fisk Rubber Company, which is now dominated by Dillon-Read interests, has not paid a dividend on its 1,704,392 shares of common stock since 1920. Acquisition of this company by Goodrich would bring Akron's oldest rubber company close to Goodyear's mark as the world's largest rubber company."

Growers Plan Halt in Tapping in May, As World Stock of Rubber Reach Peak

WITH the aim of halting to some extent the tremendous rise in stocks of crude rubber throughout the world, plantation owners will unite next month in a thirty-day tapping "holiday." If the cessation of tapping proceeds as scheduled, it is expected that the world output of rubber will be decreased by at least 30,000 tons and possibly by 35,000 tons.

At the annual general meeting of the Rubber Growers' Association on April 11, it was reported that assent to the plan had been obtained from producers in the United Kingdom representing 90 per cent, from Dutch and other European producers excluding British operating in the Dutch East Indies 91 per cent, and from Malayan local European companies 79 per cent. A measure of support has been obtained from growers in Indo-China, and, according to the report, the only disappointing feature was the poor response from Ceylon local European companies.

Meanwhile, stocks of crude rubber at principal ports and leading manufacturing centres have risen steadily to new peak levels and now approximate a half a year's production. World inventories of rubber on April 30 may be roughly approximated as follows:

	Tons
United States	160,000
Afloat to United States	63,000
United Kingdom	95,000
Singapore and Penang	45,000
Malaya Mainland	40,000
Afloat to Europe	28,000
Holland	5,000
Para and Manaos	4,000
Total	440,000

On the same basis, world stocks as of April 30, 1929, totaled approximately 295,000 tons. These figures take no account of the inventories on hand in such leading manufacturing countries as Germany, Italy, France, Russia, Canada and Australia, which undoubtedly amount to an appreciable total.

While the actual taking of some 30,000 tons from the world market through the May tapping vacation will not be an important factor in reducing the heavy total of stocks, it is generally regarded as likely to have a beneficial psychological effect and as giving promise of greater results from Anglo-Dutch co-operation in the future.

Tire Output During February Gained Despite Drop in Rubber Consumption

ALTHOUGH the consumption of crude rubber throughout the domestic industry as a whole showed a decline during February, tire production in that month increased slightly over January. The increase, as usual, was wholly in balloon tires, with high pressure casings and tubes dropping back to lower levels. Balloon casing production was the highest for any month since last August, while balloon inner tube output exceeded any month since July, 1929.

Tire factories in the United States produced a total of 4,859,475 pneumatic casings during the month of February, according to estimates issued by the Rubber Manufacturers Association, Inc. Total production of inner tubes is estimated at 4,942,755 and total production of solid and cushion tires at 29,736 for the month.

This output of casings represents an increase over the January total of 4,745,149 units, but is still considerably below February, 1929, when 6,911,591 casings were turned out. Shipments were somewhat lower than production, and inventories, therefore, gained slightly over the figures for the end of January. Total shipments during February are estimated as follows:

Pneumatic casings, all classes	4,474,459
Inner tubes	4,626,559
Solid and cushion tires	28,007

Inventories as of February 28 are estimated as 13,238,451 for all pneumatic casings; 13,905,291 for inner tubes, and 170,391 for solid and cushion tires.

The tire industry is estimated to have consumed a total of 53,838,572 pounds of crude rubber and 18,355,969 pounds of cotton fabric during the month of February in the manufacture of all types of pneumatic casings, inner tubes and solid and cushion tires.

The association's estimates are based on reports furnished by manufacturers who produce approximately 75 per cent of the total for the United States and have been raised in the above figures to represent 100 per cent.

Johns-Manville Reported as Seeking To Acquire Raybestos-Manhattan, Inc.

NEWSPAPER reports state that there have been some discussions looking to the acquisition of Raybestos-Manhattan, Inc., by the Johns-Manville Corporation. The absorption of Raybestos-Manhattan, it is pointed out, would further round out the Johns-Manville line, giving it an important producer of brake linings and clutch facings and other general asbestos and rubber products.

The acquisition of Raybestos would be in line with the policy of Johns-Manville in building up its business by purchasing established concerns. Last year four properties were acquired—Banner Rock Products Company, Weaver-Henry Manufacturing Company, Preformed Asphalt Products Company and E. N. Biegler Manufacturing Company. Together with its own growing business, these additions had the effect of increasing the company's sales by $14,049,325, or close to 30 per cent.

In the year 1929 Raybestos-Manhattan, Inc., had sales of $22,290,619, as compared with sales by Johns-Manville of $61,994,884, a combined total of $84,285,503. Raybestos-Manhattan reported net profit available for dividends of $3,206,294, equal to $4.74 a share on 676,012 capital shares. Net profit of Johns-Manville, after charges and taxes, in 1929 totaled $6,591,916, equivalent to $8.08 a share after preferred dividends. Aggregate earnings of the two companies last year were, therefore, $9,798,210.

Raybestos-Manhattan, Inc., is a combination of the Raybestos Company, the United States Asbestos Company and the Manhattan Rubber Manufacturing Company. While the other units in the organization specialize in asbestos brake lining, the Manhattan Rubber Manufacturing Company had long been one of the best known producers of mechanical rubber goods, having been incorporated in 1893. In addition to manufacturing hose, belting, packing, molded goods and brake lining, it owns plantations in Java on which it grows 10 per cent of its crude rubber requirements. It was merged with the other two firms in the spring of 1929.

The Raybestos-Manhattan capital stock has had a sharp rise on the New York Stock Exchange this year, going from 33 in January to 58⅞ on April 17, higher than even its 1929 peak. Johns-Manville common has not been so spectacular, fluctuating this year between 117 and 148⅜, and closing on April 17 at 127⅛. Last year Johns-Manville common sold as high as 242¾, but declined from that level to a low of 90 in the October-November crash.

Raybestos-Manhattan has an authorized issue of 1,000,-

000 shares of capital stock, of which 676,012 are outstanding. Johns-Manville has an authorized capitalization of 100,000 shares of cumulative 7 per cent preferred stock and 1,000,000 no-par common shares. There are now outstanding 75,000 preferred and 750,000 common shares. Raybestos-Manhattan pays a dividend of $2.60 annually on its capital stock, while the Johns-Manville Corporation pays $3 yearly on its common.

United States Rubber Consumption Totaled 35,914 Tons During March

CONSUMPTION of crude rubber of all classes by manufacturers in the United States in the month of March is estimated at 35,914 long tons, according to statistics compiled by the Rubber Manufacturers Association. This compares with estimated consumption of 32,726 long tons in February and 44,730 long tons in March, 1929.

Imports of crude rubber of all classes into the United States during the month of March totaled 45,430 long tons according to estimates issued by the Rubber Manufacturers Association. This compares with the association's estimates of imports of 43,728 long tons in February and with 53,824 long tons in March, 1929.

Consumption of reclaimed rubber is estimated by the association at 15,616 long tons for March, as compared with its own estimates of 14,918 long tons in February and 20,068 long tons in March, 1929.

The association estimates total domestic stocks of crude rubber on hand and in transit overland on March 31st, at 156,516 long tons compared with 143,863 long tons as of February 28th and 100,536 long tons as of March 31, 1929. Crude rubber afloat for United States ports on March 31st is estimated at 63,646 long tons as against 63,404 long tons on February 28th and 67,065 long tons a year ago.

Falls-Cooper Combine Plan Is Revived Under Name of Master Tire & Rubber Corp.

MERGER of the Falls Rubber Company, Cuyahoga Falls, O., and the Cooper Corporation, Findlay, O., the consummation of which was defeated by Cooper stockholders on February 27, is now expected to be accomplished through the medium of a newly formed company. The formation of the Master Tire & Rubber Corporation under the laws of Delaware to function for the present as a management and holding unit was announced on April 10.

By exchange of securities, the new company has acquired large stock holdings in both the Falls Rubber Company and the Cooper Corporation, and is making plans, it is reported, for the consolidation of the two concerns.

Ira J. Cooper, president of the Cooper Corporation, is president of the new organization, and W. P. Cline, president of the Falls Rubber Company, is named as vice-president and treasurer. Frank C. Millhoff, of Falls, is also a vice-president, and Richard P. Bremer, former Falls president, is secretary of the new concern. Directors, in addition to the officers, are J. F. Schaefer, Findlay, O.; W. G. Lerch, Falls factory manager; J. B. Firestone, Spencer, O.; and R. L. Kryder, Akron, O.

The authorized capital of the new Master Tire & Rubber Corporation is 20,000 shares of preferred stock of $100 par value and 135,000 shares of common stock of no par value. The Master Tire & Rubber Corporation has liberal charter provisions, authorizing it to engage in the manufacture and sale of tires, tubes and other rubber products, but for the present officials announce that "it will be used as a management and holding company to acquire the outstanding stocks of operating tire and rubber companies."

Plans for a Falls-Cooper merger were first released when directors of both firms approved such action on January 31. Stockholders of the Cooper Corporation, however, voted against the proposal that was offered at a meeting a month later.

Ira J. Cooper was the founder and has been the chief executive of the Cooper Corporation, and engaged in the manufacture and distribution of tires and batteries for many years. Frank C. Millhoff was chief sales executive of the Miller Rubber Company for years and is well known throughout the tire industry.

125 Chemists Attend Interesting Meeting of Rubber Division at Atlanta

THE spring meeting of the Rubber Division, A. C. S., held at the Biltmore Hotel, Atlanta, Ga., on April 9-10, was attended by 125 members and guests—a surprisingly large attendance in view of the distance of Atlanta from the several rubber centers of the country.

The eighteen papers which were presented (*see abstracts in* THE RUBBER AGE *of March* 25) proved to be of more than usual interest, for they not only covered a diversified line of rubber technology but they were well prepared and presented.

The discussion of papers was livelier than usual, credit for which goes to the papers committee, who saw to it that manuscripts were in early and that they were reviewed in advance.

A committee was appointed to wait upon the Rubber Manufacturers Association to secure their support for continuation of the work on standardization of test methods being conducted by the Physical Testing Committee.

Reading of papers took place at two sessions on Wednesday, April 9, and a morning session on Thursday, April 10. On Wednesday evening, the Rubber Division dinner was held in the Pompeiian room of the Hotel Biltmore. An orchestra furnished music during dinner, while a banjoist and guitarist added to the enjoyment by a number of lively airs. Later in the evening a dancer and a "blues" singer entertained the gathering by demonstrating how the "arts" are mastered in the South.

Singing by the members was, as usual, a feature of the evening. The songs, written by "Bill" Whitcomb, were issued in multigraphed form to the diners and also flashed on a screen. The entertainment committee, consisting of O. M. Hayden, Du Pont (Chairman); R. E. Casey, Naugatuck; J. M. Ball, Vanderbilt, is to be highly congratulated on the success of the evening.

At the dinner the following souvenirs were distributed: A composition cigarette box made of Victron, a new resin material developed in the laboratories of United States Rubber Company (Naugatuck), several rubber mats and a boutonniere (Du Pont), Japanese puzzle box (Vanderbilt).

Stanley Krall, chairman of the division, introduced Dr. W. N. Jones (Goodrich), who acted as toastmaster for the evening. The first three speakers were Dr. Harrison E. Howe, editor of *Industrial and Engineering Chemistry;* Dr. C. L. Parsons, secretary, A. C. S.; and Dr. William McPherson, president, A. C. S. They spoke informally on current A. C. S. activities and technical progress in the rubber industry, and left early to attend Dr. Howe's address given before the whole society. The next speaker was Horace Russell, president of the Atlanta Chamber of Commerce, who spoke entertainingly on the advantages of Atlanta and the State of Georgia. The last speaker was O. B. Keeler, sports writer and columnist of the *Atlanta Journal,* who kept the audience in continual laughter by his reading of some selected poetry.

(Other news of the industry will be found on Pages 93-99)

La Crosse Rubber Mills Co. "Celia" Flexo Line

Servus Rubber Co. "Step-Out" Gaiter

B. F. Goodrich Co. "Del Rio" Oxford

Refinement of Product FOOTWEAR STYLES

Manufacturers Slow This Year in Planning New Styles for Public . . . Color Vogue Seems Past and Trend Again New Designs in Women's Light Rubbers and Men's

PROBABLY at no time since rubber footwear production became a factor in the industry, has the development of next year's styles been as late as it has this season. This is partly accounted for by the changing of the announcement of new prices from January 1st to February 1st, and partly by the style element which has become more accentuated this year. Manufacturers seem to be proceeding very slowly on style items, waiting to get the reaction of the dealers and consumers to the many new ideas in footwear which they are bringing out.

Looking back to the period of four years ago, when the first transition was made from the conventional black four buckle women's gaiter, and comparing some of the original style shoes to the present output, one is struck by the crudity and clumsiness of the early attempts to make rubber footwear a style product. Each year seems to have added some refinements which have improved the sales appeal of women's footwear.

Companies Employ Women Stylists

Practically all of the rubber footwear companies now employ professional women stylists who develop the color combinations in galoshes which will blend properly with the colors decreed by fashion as correct for women's wear. These combinations are then worked into attractive models of shoes by the manufacturers. Strangely enough, for the season of 1930-31, the trend is toward black, the color originally abandoned by rubber shoe concerns when the color vogue first started, although chocolate brown, beige, and navy blue are predicted to have a large demand during the coming season.

The demand for rubber surface gaiters still seems to grow at the expense of the cloth type. Finishes have been improved and many new attractive designs are being shown which testify to advancement in the application of engraved calender rolls and fine calender work. The two general types, the automatic fastener or slide fastener type, and the snap button type seem to remain, although there are signs of developments with very stretchy fabrics and elastic gum combinations of shoes which slip on over the foot and adjust themselves without the aid of fasteners.

The field of the women's light rubber seems due for a more radical change. It is a distinct effort to carry the popularity of the colored galoshe to the lighter shoe which is worn in spring, summer, and fall during damp and rainy weather. The new models follow the lines of fancy oxfords and pumps in the leather field, many of them carrying fancy buckles and ornaments. The unlined lightweight rubber and foothold seem to be gaining in favor, being packed in a small rubber pouch which can be carried in milady's handbag.

New Developments in Men's Styles

Style shoes for men are another new development. High and low automatic fastener gaiters with brown rubber finish seem to be gaining in favor, and there are several attempts to combine the spat and overshoe or rubber which offer possibilities. This is accomplished in two ways, one with snap buttons on the side, the other with a concealed automatic slide fastener.

American footwear manufacturers are large exporters to Europe, and while the Wellington boot still holds sway in England, the Continent shows a decided preference for the automatic fastener all rubber and cloth galoshe.

There is little to be said about the staple lines of heavy

Mishawaka Rubber & Woolen Mfg. Co. Men's "Walton" Boot

B. F. Goodrich Co. "Show Boot"

Northern Rubber Co. Fur Trimmed "Style-Shu"

Reflected in Rubber for 1930-31 SEASON

tems Awaiting Reaction from Dealers and Consuming gain Toward Black . . . Improved Finishes and Men's Styles Are Most Pronounced Changes

and light footwear. Lace and buckle high pacs seem to be displacing the conventional rubber boot for special work on farms and hunting. Fishing boots with cleated soles and khaki color are growing in demand, and footwear for industrial uses in mines, creameries, and construction work is becoming more of a factor.

All New Catalogs Not Yet Out

Owing to the fact that many of the catalogs are not yet issued, it is not possible at this time to mention the new lines of all the companies. Distinctive shoes will be given special notice later as they appear.

The United States Rubber Company offers the "Rubber Eversmart," a shoe with a convertible cuff which can be worn turned down when the weather is not so very stormy and can be turned up to give added spatter protection in heavy storms. It is a "kwik" automatic fastener and comes in the following colors: ruby, fern, indigo, tan, russet, black, and smoke. The "Avalon" also has convertible cuff which can be worn turned up or down. This shoe has a special side opening which leaves the front with a smooth, unbroken finish. It comes in the same colors as the "Eversmart." "Gaytee Rubber Oxfords" are a new type of rubber, cut higher than the ordinary rubber. It covers the shoe completely and gives a very attractive oxford appearance.

The B. F. Goodrich Rubber Company offers a threefold line predicated on the idea of a three pair sale to every customer—the "Del Rio" oxford for mild, inclement weather, the "Shower Boot" for slushy weather, and the fabric "Zipper" for cold weather. The new featherweight cloth "Lo-Zipper" weighs less than seven ounces and is a beautiful all wool creation with a concealed fastener. Colors are cedarglo, madura brown, and black. The "Del Rio" oxford is made with a surface design of a spider web pattern. The new pony "Shower Boot" is made with the concealed fastener, imitation cuff, and an ornamental clasp. A new featherweight all rubber "Zipper" for men is made in a finely waved pattern, varnished, black and brown colors, and with a concealed fastener.

The Mishawaka Rubber and Woolen Manufacturing Company, Mishawaka, Ind., propbably offers as comprehensive a line as any company in the industry, and the 1931 assortment is no exception. Boot specialties which continue in popularity are the "Walton" boots with buckle adjustment at the ankle, "Mishko" sole (hobnailed) boots, for severe service, and the "Brazil," a special white mining shoe with buckle adjustment at the top to keep out coal dust. Two-buckle "Sanslips" are a new idea in mud rubbers which was brought out last year and is proving very successful. In the fashion field, 4 snap and 3 snap "Savoys" and "Monopul Savoys" are offered in the latest colors and finishes, and the "Ariel," an unlined rubber, has a new splashguard feature which is quite novel.

Individuality in New Styles

The La Crosse Rubber Mills Company, La Crosse, Wis., shows a new line, which perhaps lacks some of the feature appeal of the others, but nevertheless shows a completeness which covers every footwear market. The "Flexo" rubber idea has been extended to cover all styles, and the "Flexo Gum Novelty Gaiters" are carried in snap and automatic styles in brown, black, tan, and light grey. "Star," "La Crosse," "Wisconsin," and "Badger" brand staple merchandise cover the price ranges in every field.

Converse Rubber Company, Malden, Mass., has im-

proved its all-rubber women's line with a new finish or line pattern which sets forth the beautiful colors in the "Ensemble," the talon fastner gaiter, and the "Milady," the snap type gaiter, with a distinctive sheen. The "Oxonia" is a new buckle rubber oxford, and the "Rio" and "Neetoe" are colored unlined croquets and footholds which follow the latest trend. The new cloth style gaiters personify their name "Chix," being modeled after the latest type of rubber galoshes with pleasing new fabrics. The heavy goods line is unique with the combination of the Converse-Hodgman sporting specialties, fishing waders, boots, air mattresses, pillows, ponchoes, and leather top overs.

Servus Rubber Company, Rock Island, Illinois, shows a new line concentrated on the fast selling leaders in every type of footwear. New additions are the "Lace-Ace" boot, a 15 inch bal cut lace number, the "Eazon" over, of the two buckle mud rubber type, and a line of dress rubbers made over special lists to fit a variety of shoes. Style gaiters are shown in the cloth and all rubber types on the snap variety only.

Goodyear Rubber Company, Middletown, Conn., follows a distinctive policy, well suited to a manufacturer of its size, in carrying a short line of super quality specialties. Boots for longshoremen, firemen, and fishermen are featured, as well as hunting shoes, heavy gaiters and arctics, and dress rubbers. A new line of women's, misses' and children's moire finish rubbers marks the novelty feature of the line.

Canadian Companies Following U. S. Styles

The Canadian manufacturers show the same general tendencies in footwear styling as the American companies, with a few exceptions peculiar to their own country. For example, fur trimmed carriage boots are very popular in Canada, and all rubber footwear producers there offer a varied line of them. Miner Rubber Company, Granby, Quebec, and Northern Rubber Company, Guelph, Ontario, are the only companies across the border whose catalogues are come as yet to hand and from a survey of these lines, it is evident that the Canadians are abreast of the latest developments in rubber footwear for 1931.

Dunlop Doubling Machine

IN the doubling of yarns of various foldings, many devices have been used in the past, among them being the throstle, flyer, cap and ring. Each has and does serve its own particular purpose, but with the advance in machinery generally called for by the superior fabrics now being produced for tire manufacture, a new type of doubling machine has been evolved. It is the joint invention of M. Langstreth and T. Andrew, both of whom are officials of Dunlop Cotton Mills, Ltd., Rochdale, England. Mr. Andrew is the general manager of the mills, which are the largest in the world, and Mr. Langstreth is Dunlop's chief textile technologist. These mills make the cord for all Dunlop tires and fabrics, and also provide these materials for the Dunlop subsidiaries.

It is well known that the cord used for tires must possess special characteristics which with existing machinery is difficult of attainment. Bearing this in mind, the inventors of the new machine for a considerable time directed their attentions to the evolution of a device which would be simple in its construction and yet very effective in operation. The principal method of doubling at present is by the use of a ring doubling frame, which essentially consists of a spindle, ring and traveler, very similar to a spinning ring frame. A serious difficulty, however, is encountered in the doubling of tire cord in a ring doubling frame in assuring the amount of twist necessary to be inserted in the yarn in order to give it the particular characteristics essential to meet the arduous duty it has to perform. The travelers being negatively controlled are free to move in an unwinding direction when the spindles are stopped, the effect of which is for snarls to be produced, these being very detrimental to the cord. In many factories this is overcome by continually running the ring doubling frame from start to finish of the full bobbin.

The principal features of the new Dunlop invention are special means employed to control quality and at the same time give high production at low cost. The first object is

Weaving Tire Fabrics on the New Doubling Machine at the Dunlop Cotton Mills, Rochdale, England

obtained by eliminating negative control of the yarn and having positive control at all points. This is effected by first ply-winding the material to be doubled in cheese form of suitable size to fit the gauge of the machine. The cheese is then suitably mounted on an upright holder from which it is unwound, the yarn passing through the center and out of the side of the main spindle which by its revolutions imparts the necessary twist, the amount imparted being limited only by the amount the cotton will stand.

From the side of the spindle the yarn then passes over a suitable disc to the drawing-off rollers. The accompanying illustration shows the yarn revolving around the aforementioned cheese, which has the effect of imparting two turns of twist for one turn of the spindle. From this it will be seen that, for the same spindle speed as any other machine, double production is obtained. It will also be seen that neither the cheese nor the doubled yarn package are rotated for the purpose of imparting twist.

In the development of this machine careful consideration has been given to the elimination of oil or grease stains which are so prevalent in ordinary doubling. Another noteworthy feature is the large package into which the doubled yarn can be wound. Exhaustive independent tests on raw cords and tires made from material produced on this machine have thoroughly proved the value of the invention. The Dunlop company is so satisfied that it has ordered the installation of a large number of machines of this type.

Arrangements for the dissolution of the Automotive Lighting Association have been completed, and the members will function in the future as part of the Automotive Lighting Group of the Motor and Equipment Association. The Automotive Lighting Association was organized in 1925.

The Markets of the World for CANVAS RUBBER-SOLED SHOES

Canadian Exports Gain in Many European Markets and Argentine—Cuba and the Philippines Continue to Be the Best Fields for the United States—Local Industries Expanding

IN summarizing the world market for canvas rubber-soled shoes, according to the Department of Commerce, it becomes necessary to view the situation generally from the standpoint of United States and Canadian exports. With these two principal exceptions, the various countries of the world use the general classification of "rubber footwear" or "rubber boots and shoes" in their official export statistics—thus leaving no basis for comparison of the canvas rubber-soled footwear trade. But a very accurate survey of the trade can be obtained from the point of view of the American exporter, inasmuch as the American and Canadian producers together supply a large percentage of the world demand.

Canvas rubber-soled footwear appeals to two distinct markets or types of people throughout the world. One a price market in tropical and semitropical regions, where the small buying power of the natives is the controlling factor; and the other a luxury market in the temperate regions, where athletic activity is the principal recreation. The English-speaking and western European countries constitute a large seasonal market, owing to the popularity of tennis and other athletic and gymnastic sports. In still other countries the rigorous climate or roughness of the terrain prohibits the use of any but the hardiest of footwear.

The greatest production of canvas rubber-soled shoes is in the United States, while the greatest exports are from Canada. In 1927, the United States produced 28,810,061 pairs of canvas rubber-soled shoes, exporting 4,789,004 pairs, or 16.6 per cent. Canadian production in the same year amounted to 8,376,000 pairs and exports to 65.5 per cent of that amount, or 5,491,164 pairs. Before 1927 the United States was the world's largest exporter of canvas rubber-soled shoes, but for several years prior to that time its position had been threatened by the continual inroads of Canadian exporters—just as it is now in the case of all rubber footwear. In that year Canada took the lead and in 1928 this lead was materially increased.

Argentina the Leading Market

Argentina and the United Kingdom present the greatest demand for canvas rubber-soled shoes. The United Kingdom is always one of the largest importers, but of recent years Argentina has been making rapid strides until now its demand more than doubles that of the United Kingdom. Canada is the principal exporter to both of these countries and its position as the world leader in the commodity is largely due to their trade. Another large market is the Philippine Islands, with the United States supplying the bulk of the trade, but more recently receiving strenuous competition from a cheap Japanese product. The European market, although taking the greatest percentage of the trade, is so hotly contested that American and Canadian exporters have not been able to obtain the position of preeminence held in other parts of the world. The United States leads in exports to Italy, Norway, Spain, and Portugal; Canada stands first in exports to United Kingdom, Denmark, France, and Germany.

Other Leading Exporters

The principal exporters of the world, other than Canada and the United States — as near as can be judged by statistics not listing canvas rubber-soled shoes separately—are France, United Kingdom, Sweden, Latvia, Austria, and Germany. British Malaya and Japan, with a generally low-grade product, also command a position of major importance in the trade. It is quite probable that Malaya exceeds any of the above-named countries in quantity of exports, with the possible exception of France and the United Kingdom, as Malayan production of rubber footwear is said to be 98 per cent canvas rubber-soled. The position of Sweden and Latvia, were it possible to obtain accurate production statistics, might be quite different in the canvas rubber-soled footwear trade, because the demand in these two countries would lead to the production of greater percentages of heavy rubber boots for winter wear.

Comparative Exports of the United States and Canada

In 1927, Cuba was our leading customer, taking 971,435 pairs; the Philippine Islands came second, with 780,847 pairs; and Argentina third, with 541,759 pairs. In 1928 this position was reversed, with the Philippines only showing an increase. In that year the Philippines took 1,103,196 pairs, as compared with 901,446 and 480,311 pairs, respectively, exported to Cuba and Argentina. In 1929 each of the three leaders were well over the million mark, Cuba again taking the lead. Our exports to Argentina, while third on the list, are very much under Canada's record export of 3,041,887 pairs in 1929.

Canada's predominance in the trade, as shown in the accompanying table, is accountable largely to the component parts of the British Empire, supported by Argentina. The trend of principal Canadian exports in all but three cases is distinctly upward. The decrease in Denmark is probably due to the development and protection of the domestic industry, which has been showing considerable progress. In the case of Chile the United States appears to have been responsible for the slight loss.

Of the eight major producers in Canada, at least two—Dominion and Goodrich—are subsidiaries of United States firms. This relation between the leading producers of the two countries has led to the policy of making shipments from the Canadian factories wherever a tariff or other advantage may be gained by so doing. This practice has had a distinct effect upon the trade of the two countries, as a considerable part of the production rests in their hands.

The standards of living and climatic conditions in South

Principal Exports of Canvas Rubber-Soled Footwear from the United States and Canada

Country of destination	1927	1928	1929
FROM UNITED STATES			
Cuba	971,435	901,446	1,646,293
Philippine Islands	780,847	1,103,196	1,438,544
Argentina	541,759	480,311	1,319,249
Porto Rico	395,350	364,759	558,356
United Kingdom	296,538	421,476	383,386
British India	420,323	327,425	358,128
Colombia	219,917	254,068	259,673
Mexico	198,844	216,700	191,034
British South Africa	56,864	59,140	125,580
China	83,737	105,865	125,167
Canada	73,049	163,786	123,507
Uruguay	61,634	73,905	112,640
Netherland West Indies	134,825	162,859	104,399
Chile	79,023	66,331	103,753
Hawaii	58,765	65,302	85,457
Other countries	416,094	981,502	1,171,165
Total	4,789,004	5,748,141	8,105,331
FROM CANADA			
Argentina	1,547,398	2,200,143	3,041,887
United Kingdom	967,632	1,405,635	1,586,022
New Zealand	522,329	618,000	881,111
British South Africa	226,909	343,316	690,483
British India	294,076	656,390	667,878
Jamaica	162,038	196,404	258,717
Uruguay	148,795	143,659	252,085
Chile	168,692	216,231	210,666
Trinidad and Tobago	168,149	174,591	182,113
Colombia	49,536	131,133	164,149
Denmark	264,343	125,183	124,192
France	37,682	72,791	115,100
Netherland West Indies	134,825	59,140	105,680
British Guiana	91,971	112,825	83,371
Other British West Indies	62,273	63,941	81,503
Other countries	644,516	857,078	844,939
Total	5,491,164	7,376,460	9,289,896

America are ideally suited to the sale of canvas rubber-soled shoes. The demand of the poorer native classes calls for footwear both cheap and comfortable. There is also a good demand among the higher classes in the cities for athletic wear.

The Central American and West Indian market is well under the control of the United States manufacturers, although increasingly strong competition is being felt from Canada, and France predominates in its American and West Indian possessions.

Europe presents a different situation as a market for canvas rubber-soled shoes. France is the largest supplier of the European trade, and a big factor in the world trade, its total exports of all rubber footwear in 1928 amounting to 3,502,600 kilos (3,310,000 kilos in 1927 and 3,622,700 kilos in 1926). Canada, nevertheless, in 1928, exported 72,791 pairs of canvas rubber-soled footwear to France, 10,817 pairs to the United States, and 71,448 pairs of all kinds of rubber footwear to the United Kingdom, and in 1929 it increased its shipments to 115,100 pairs. There is a similar condition in the other producing countries of Europe — each a good market for American and Canadian exporters, yet often leading in exports to the neighboring countries. The United Kingdom imported from Canada and the United States a total of 1,827,111 pairs of canvas rubber-soled shoes in 1928, 700,500 kilos of all kinds of rubber footwear from France, and considerable quantities from Sweden, Austria and Germany — and yet its exports totaled 3,249,768 pairs of rubber footwear of all kinds.

The importance of Sweden in the rubber-footwear trade lies in waterproof footwear rather than canvas rubber-soled shoes. The climatic conditions of the country prevent the use of light canvas footwear to any great extent. Sweden imported 11,220 pairs of this type from Canada in 1928, but only 632 pairs in 1929. The United States fared better, with 5,287 pairs in 1928 and 9,370 pairs in 1929. Sweden's largest export of rubber boots and shoes goes to Rumania, but it is not known what percentage of its 1927 exports of 158,938 kilos to that country is canvas rubber-soled footwear. Sweden's exports of all-rubber footwear totaled 756,289 kilos in 1927 and 632,364 kilos in 1926.

A downward trend is evidenced in Germany's exports of rubber footwear. Exports have dropped each year, from 748,900 kilos in 1923 to 253,900 kilos in 1927, while imports have a tendency to increase. Canadian exports of canvas rubber-soled footwear to Germany in 1928 reached a new high of 182,847 pairs, only to drop to 76,327 pairs in 1929.

Czechoslovakia in the past has not been an important exporter of rubber footwear, but recent statistics show that the entry of T. & A. Bata into the manufacture of rubber footwear is having a marked effect upon the trade.

Markets Developing in Asia

With the more widespread adoption of European clothes and the appeal to the comfort of the natives, canvas rubber-soled shoes have found an important trade in Asia. The most important field lies in India, followed by China and Malaya. In Japan a protective tariff barrier makes exportation to that country very difficult. Canada leads in exports to India, with 667,878 pairs in 1929, as against 656,390 pairs in 1928 and 294,076 pairs in 1927. China took 125,167 pairs from the United States in 1929 and only 36,138 pairs from Canada. Malaya, the other principal market, finds the United States in the lead with 60,000 pairs, while Canada's 1929 exports amounted to 15,000 pairs. In 1929, the United States exported but 768 pairs to Japan and Canada's exports were only 475 pairs.

Strong competition is being felt in the far eastern trade from Malaya and Japan. One company located in Singapore is producing about 300,000 pairs of rubber footwear a month and supplying a large percentage of the local trade. Japan has a large local industry, supplies practically all of the Japanese demand, and is the largest exporter to the Far East.

In Africa the exports of canvas rubber-soled shoes are by far the most important item of rubber footwear. This popularity is accountable to the national pastime of the European population—tennis. The exports are greatly influenced by political allegiance to foreign powers, British, French, and Belgian exporters dominating the field in their respective possessions and protectorates. The United States exports considerable quantities to the British possessions and Portuguese Africa. The Union of South Africa is the leading individual market, although strong competition is met from locally manufactured goods. A high protective tariff of 30 per cent ad valorem is placed on rubber boots and shoes imported from the United States.

South African Market

In 1929 Canada exported 690,483 pairs of canvas rubber-soled footwear to British South Africa, which represents the high mark of a general increase covering the past several years. United States exports were double those of 1928, amounting to 125,580 pairs.

Australia is supplying a good percentage of its local needs through a well-protected home industry. There is a large demand for canvas rubber-soled shoes, but the United States participation in 1928 was only 22,436 pairs, represent a gradual decrease over a 7-year period. Canadian and British exports also are in a downward trend—the Canadian exports decreasing to 66,593 pairs in that year, and 57,476 pairs in 1929. The position of the United States improved slightly in 1929, aggregating 29,952 pairs.

The New Zealand tariff favors the British Empire and as a result American exports were only 3,619 pairs of canvas rubber-soled shoes in 1928, and 6,453 in 1929.

Rubber-Fabric Combinations *as* Used *in* Rubber Footwear*

By Arnold R. Davis
Firestone Footwear Company

MANY of the rubber-fabric combinations now used in the rubber footwear industry have been in general use for a number of years. In other words the type of fabrics used and even many individual fabrics used in combination with rubber in the manufacture of rubber footwear, have seen little or no change for many years. Of course every year we see many new fabrics that may be called new in design or color but these are only modifications of the general types of fabrics.

What has been said of the fabrics is also true of the methods of combining the rubber and fabric. In other words most of the methods of preparing the rubber-fabric combinations for rubber footwear have been known and in use for a long time.

The general types of fabrics, which have become more or less standardized in the industry after a number of years of use, may be classified as follows:

1. Woven Fabrics
   a. Cotton (sheetings, etc.)
   b. Cotton and Wool (cashmerettes, etc.)
2. Knitted Fabrics
   a. Cotton (netts)
   b. Wool (jersey)
   c. Cotton and Wool (fleeces)

Rubber is combined with the fabrics by several different methods and in some cases by a combination of 2 methods. These general methods are as follows:

1. Friction (calender)
2. Skim or calender coat
3. Bank skim or calender coating with a bank
4. Spreader coating.

Practically all fabrics are given some heating or drying treatment before being processed or combined with the rubber in order to aid in obtaining good adhesion between the fabrics and the rubber compound and to prevent blowing in the vulcanizers especially in humid weather. The heating or drying process may simply consist of running the fabrics over a steam heated drum drier or putting the fabrics in a hot room (160 to 180°F) for 20 to 40 hrs. or may consist of a combination of the two processes. In addition to this drying process the fabrics are usully passed over a steam heated roll or pipe just before going into the calenders.

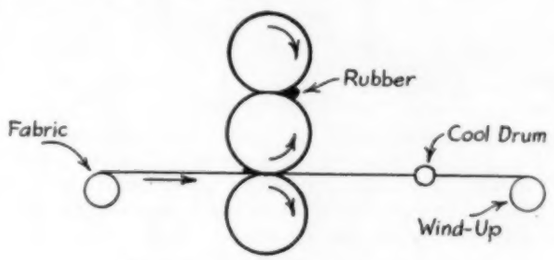
When the fabrics have been combined with rubber and are ready for the cutting and making processes the rubber. fabric combinations may be classified as follows:

1. Frictions
2. Combinations
3. Coated Fabrics
   a. Linings
   b. Insoles
   c. Outside materials

Frictions

The frictions or frictioned fabrics, as the name implies, are prepared by running the fabric through the friction calender. For most purposes the fabric is passed through the friction calender twice, that is: applying a friction coat to one side and then a friction coat to the reverse side.

The friction ratio or the speed of the middle roll as compared to the bottom roll varies for different factories but seems to fall between the limits of 1.5 to 1 and 2. to 1.



FRICTION CALENDER

The frictions are used for various parts of footwear such as piping, toe caps, heel pieces, sole forms, vamp and leg forms. The fabrics for these parts are woven cotton fabrics and vary, depending on the service desired, from a 64x60 count sheeting weighing 2.8 oz. per sq. yd. to a 28x15 count boot duck weighing 9.9 oz. per sq. yd.

Combinations

The so-called combinations consist of woven cotton fabrics which have been frictioned on one side and then calender coated on the other side with a fibre-gum mixture called rag. (The rag is made by grinding up the cutting waste of frictioned and coated fabrics and then mixing these with a suitable amount of a rubber compound.) The fabrics used in these combinations show considerable variation but usually run from a light weight sheeting to a 34x26 count osnaburg weighing 5.6 oz. per sq. yd.

The combinations are used mostly for filling in soles and juniors or counters.

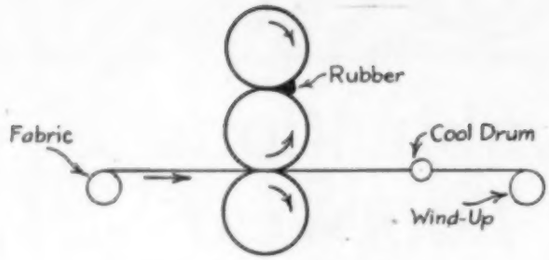
Coated Fabrics

Linings are prepared in several ways. First there are the rubber-fabric combinations prepared by giving the fabric a light coat of gum applied by pressure on the even speed calender. Second there are the lining materials which have been prepared by giving the fabrics a friction coat on one side and then a coat of gum applied by an even speed calender to the same side, that is: on top of the friction. Third, some lining materials are prepared by running the fabric through the even speed calender with a small bank about the size of a pencil between the fabric and the middle roll. Fourth, sometimes there are linings which have been given a spreader coat and then a calender coat, or simply just a spreader coat.

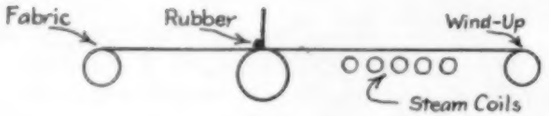
The fabrics used for linings are both woven and knitted fabrics. The woven fabrics in general use are cotton fabrics varying from a 48x40 count single napped flannel weighing 3.9 oz. per sq. yd. to a 28x18 count boot duck weighing 7.2 oz. per sq. yd.

The knitted fabrics in general use in the industry as linings, without considering the fancy linings in women's gaiters, are cotton netts, cotton fleeces and cotton and wool fleeces. The netts range from a 6½ single thread nett weighing 4 oz. per sq. yd. to a Zero double thread nett weighing 11¼ oz. per sq. yd. The fleeces vary from a light cotton fleece weighing about 8 oz. per sq. yd. to a 10½ fleece (cotton and wool) weighing 12 oz. per sq. yd.

*Paper given before New York Rubber Group, A. C. S., December 16, 1929.



EVEN SPEED CALENDER



SPREADER

Insole materials in general use are prepared by calender coating sheetings and osnaburgs with rag.

Outside Materials

The outside materials are prepared in the same way as the linings. The fabrics for outside materials are both woven and knitted fabrics. The woven fabrics in general use vary from a cotton 96x60 count Sateen to a cotton and wool cashmerette weighing about 9½ oz. per sq. yd.

The knitted fabrics used throughout the industry, not considering the fancy and special fabrics, vary from the 6½ cotton nett to a wool jersey weighing about 6 oz. per sq. yd. These outside materials are used in the tops of gaiters and arctics.

The two general types of fabrics, namely: woven and knitted fabrics, undoubtedly came into use and are still in use due to the distinctly different working and reinforcing qualities of these two types of fabrics. A comparison of the following figures gives an indication of these qualities.

2.66 Sheeting

Lengthwise Stretch or Warp Crimp	7.8%
Crosswise Stretch or Filler Crimp	9.4%

4½ Double Thread Nett

Lengthwise Stretch	60 to 70%
Crosswise Stretch	110 to 120%

From these figures it is evident that the woven fabric does not have as much stretch as the knitted fabric and therefore cannot be made to conform to the shape of footwear lasts as easily as the knitted fabric.

The absence of a large amount of stretch in woven fabrics gives them greater firmness or rigidity than the knitted fabrics and makes them more suitable for reinforcing purposes. This is the reason for using woven fabrics in the leg forms of boots where a certain amount of rigidity or stiffness is desired. On the other hand, if flexibility is desired as in a light gum shoe or rubber, a knitted fabric is used.

In the manufacture of rubber footwear the fabrics are subjected to heat before being combined with the rubber and then more heat when the assembled rubber fabric-combinations are cured. The following figures show the effect of heat and rubber on the strength of typical fabrics when run through the usual manufacturing processes:

2.66 Sheetings

(Bone dry Grab test)

	Ave. Strength in lbs.	
	Warp	*Filler*
Sheeting Uncured	62	51
Sheeting Cured	62	54
Sheeting Frictioned Uncured	77	75
Sheeting Frictioned Cured	81	74

Black Wool Jersey

(Bone Dry Mullen Test)

	Ave.
Jersey Uncured	80 lbs. per sq. in.
Jersey Cured	81 lbs. per sq. in.
Jersey Coated Uncured	79 lbs. per sq. in.
Jersey Coated Cured	82 lbs. per sq. in.

From these figures it is evident that cotton and wool fabrics show no loss in strength in being combined with rubber and being vulcanized with the rubber in the usual processes of manufacturing rubber footwear. We have observed this for a number of years both in the old type of box heater cures and in the typical air pressure cures with maximum temperatures of 260 to 270°F.

More Volatile Gasoline

THE motor gasoline marketed this winter was decidedly more volatile than that sold a year ago, according to the United States Bureau of Mines, Department of Commerce, which has completed its twenty-first semi-annual motor gasoline survey. The survey was conducted in twelve cities situated in different parts of the country.

As in the past, distillations evidence a distinct difference between "winter" and "summer" gasoline, in that gasoline marketed in the winter is more volatile than that marketed in the summer. The difference is large over practically the whole distillation range.

The closer fractionation of gasolines sold in recent years is shown as a result of the survey. For example, in January, 1920, the spread between the average 90 per cent point and the average end point was 58° F.; in January, 1925, the spread was 43° F.; and in January, 1930, it was 35° F. The lowering of the average end point and the average 90 per cent point beginning with January, 1924, and the narrowing of the gap between these figures is especially significant in showing the beneficial effect of the better fractionating equipment now used by American refiners. The appearance of this effect is almost coincident with the beginning of the widespread installation of bubble towers and other efficient fractionating equipment at refineries. Some refiners had been using such equipment for a considerable time before this date, but its more general adoption may be said to date from the early part of 1924.

The lowering of the average initial boiling point and the average 10 per cent point probably is due in part to the increased supply of highly volatile material which became available with the increase in cracking equipment and increased production of natural gasoline.

A study of the analyses of the 158 gasoline samples taken in the course of the survey shows that no sample failed to pass the maximum 10 per cent temperature requirement of the revised Federal specification.

The twelve cities in which the survey was conducted are Boston, New York, Washington, Pittsburgh, Chicago, New Orleans, St. Louis, Omaha, Denver, San Francisco, Laramie, Wyoming, and Bartlesville, Oklahoma. These cities were chosen as representative of the more important marketing territories.

German Hose and Belting Exports

During the calendar year 1929, German exports of rubber belting amounted to 1,202,740 pounds valued at $731,620, the average value per pound being 61 cents, according to the Department of Commerce. German exports of rubber hose during the same period amounted to 4,401,100 pounds valued at $2,175,337, an average of 49 cents per pound.

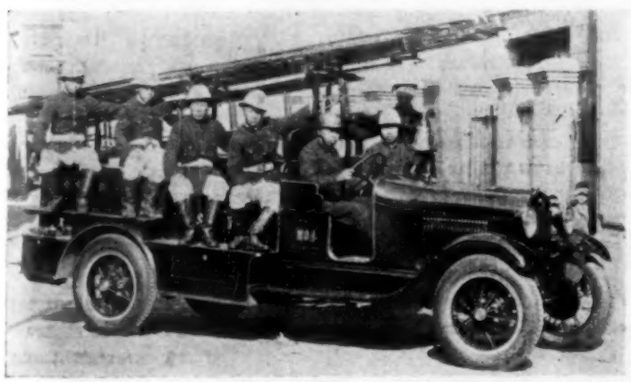
CHINA *as a* Market *for* *Manufactured Rubber Goods*

Local Manufacture is Increasing and Market Rapidly Expanding As the Chinese People Become More Familiar With Western Products and Standards—Shanghai Leading Rubber Center

By WALTER BUCHLER

RUBBER manufactured articles are rapidly gaining in use and popularity in China, due to the closer contacts between the Chinese and foreigners and the increasing adaptation on the part of the Chinese to Western goods and manners. There is also an increasing number of Chinese factories engaged in the manufacture of rubber goods.

In Shanghai, the most important commercial and industrial centre in China, there are four Chinese rubber manufacturers, making rubber soles and heels, tires for handcars and rickshaws, and overshoes. The quality of these Chinese manufactures is inferior to that of the imported merchandise, but prices are lower. For instance, heels for shoes are sold from 45 to 70 cents a dozen and overshoes $6.80 a dozen. Whilst some of the larger Chinese rubber manufacturers use machinery, the smaller firms employ workmen to do all the work by hand after the necessary rolling of the sheets, using scissors, rollers, and other simple machinery. They are paid either by the month or by piecework; in the former case, $5 to $6 with board and lodging free, or in the latter, 3 cents for each pair of overshoes turned out. These cheap rubber goods made by Chinese rubber manufacturers are largely worn by Chinese, who are unable to afford anything better. Where machinery is used, it is of a very simple type, imported from Japan, Germany, and Great Britain. The quantity of rubber goods made in China is quite insufficient to meet the growing demand from all classes of people.



Modern Fire Fighting Equipment in Chinese Cities Offers Field for Rubber Goods

There is no doubt that, in the course of time, more and more firms manufacturing rubber goods will open up in China, whilst those already operating will install better and more modern machinery in place of the crude machinery made locally and hand-labor. China offers good scope for manufacturers of machinery for rubber goods. It should be as cheap as possible but good and durable and easy to operate. The Chinese are not particularly good organizers, and a factory owned or controlled by foreigners in China generally shows better results than one run entirely by Chinese.

There is certainly room for a foreign rubber factory working on a large scale in China. Shanghai would be the most suitable location for such a plant.

Very keen interest is taken in rubber both by foreigners and Chinese in Shanghai. It has become the centre of the rubber share market in the Far East. Numerous estates in the Straits Settlements and Dutch East Indies are controlled by Shanghai interests, shares of about 42 rubber companies being quoted on the Shanghai Stock Exchange.

Six-Wheel Truck in Shanghai With Locally Built Body on Standard Ford Chassis

The rapid increase in the demand for motor cars, motor cycles, and bicycles in China has also led to a greater demand for all rubber materials used for automobiles and accessories. The motor car has begun to appeal to the mind of the average Chinese; he is now "motor conscious." The Chinese government as well as provincial authorities have realized the importance and advantages of transport by car and are building more and better roads in many parts of China. These factors are bound to lead to an ever larger demand for tires of every description as well as other rubber accessories.

Many people in China wear high rubber boots during

Imports of Rubber Tires into China

	1926	1927	1928
	Value	*Value*	*Value*
United States	$376,154	$472,840	$828,316
Canada	56,256	35,640	32,893
Great Britain	45,809	32,943	44,720
France	321,140	189,008	255,579
Japan	679,806	684,480	984,154
Other countries	287,687	446,760	547,001
Total	$1,766,852	$1,861,671	$2,692,663

Imports of Crude India-Rubber and Gutta-Percha into China

	1926		1927		1928	
Countries	*Kilos*	*Value*	*Kilos*	*Value*	*Kilos*	*Value*
Hongkong	21,410	$22,142	103,179	$37,006	1,588	$55,278
British Malaya	81,648	74,587	5,383	4,817	53,464	21,877
Netherland East Indies	56,912	61,627	9,314	9,676	10,765	4,680
Japan	83,220	47,930	33,990	17,080	25,583	9,315
Other countries	44,211	13,383	2,781	358	149,189	8,026
Total	287,401	219,669	154,647	68,937	240,589	99,176

Imports of Boots and Shoes and Other Manufactures into China

	1926	1927	1928
	Value	*Value*	*Value*
U ited States	$229,523	$166,487	$129,567
Canada	27,694	14,607	10,504
Great Britain	47,686	24,498	27,620
France	29,614	2,219	6,574
Japan	694,288	1,049,832	1,683,260
Germany	42,983	20,174	45,320
British Malaya	240,299	424,046	552,445
Other countries	419,095	788,958	1,079,345
Total	$1,731,182	$2,490,821	$3,534,635

the winter, which is very severe in the northern parts of China. The climate in the South of China is always fairly warm, and the lightest possible uppers find a ready sale there. There are over 350,000 foreign residents in various parts of China. Their standard of living is, on the whole, high, and they buy the better quality rubber boots, shoes, and other articles made of rubber, preferance being given to American and European manufactures. Japan ships considerable quantities of rubber goods to this market, but their quality does not compare favorably with those made here, although their price is often lower. With the Westerner in China, price does not, as a rule, count so much as quality, whereas with the average Chinese, price is the predominant factor. There is also a growing demand in China for druggists' rubber sundries, such as water bottles, syringes, rubber gloves, and better quality toys. Chinese girls are now using water bottles also as handwarmers and to give color to their cheeks.

Getting Established in China

In order to enter this market, exporters and manufacturers should appoint a foreign firm already established in China as their agents. It is not advisable to confine one's activities to one firm in this market, but China should be divided into separate areas, and agents appointed in each of the following trading centres: — Shanghai, Tientsin, Hankow, Dairen, Hongkong, Canton, and Harbin. Larger houses will find it pays to establish their own branch in Shanghai and organize sub-agencies in the other towns from there. To do this, it is necessary to establish a Chinese selling organization. This will consist of a "Compradore" and the usual clerical staff. The Compradore's task is to introduce business and to guarantee payment of accounts up to a certain percentage, generally 25%. In return, he receives a commission on all transactions and sometimes a salary to cover wages paid by him to his Chinese staff, whom he engages and for whom he is responsible. Rubber tires and accessories are usually handled in China through garage companies, who act as agents for manufacturers and supply equipment besides other motor accessories. These, however, are also imported by merchants dealing in hardware.

During recent years, there has been a growing tendency on the part of Chinese merchants to import rubber goods direct. There is no reason why such direct trade should not be encouraged, as long as payment is arranged at port of shipment, enabling the supplier to obtain his money prior to goods leaving this country. The Chinese are very keen buyers and they are anxious to eliminate intermediary expenses as much as possible.

Increasing Industrialism Aids Markets

With the growing industrialization of the country and the increasing purchasing power of the people, the demand for imported rubber goods as well as machinery for making them is certain to expand. The disturbances, Chinese "wars," and other troubles of which so much has in recent years been, and still is, heard from China, should not discourage anybody from concentrating on this market, for such factors do not interfere with trade to any great extent, the Chinese being too keen on trading to allow them to do so.

The increase every year in the number of factories of every kind in and around Shanghai and other important industrial centres in China has led to a greater demand for rubber belting and mechanical rubber goods. There is now also a ready sale in China for waterproofed goods. The accompanying statistics of China's importations of rubber goods during recent years will enable all those interested in this market to obtain an idea of its requirements and the volume of business already being done.

New Carbon Black Process

INCREASED yields of carbon black from natural gas have been obtained by injecting the gas into a bed of ignited coke in the course of tests recently conducted by the United States Bureau of Mines, with the Louisville Gas & Electric Co., at Louisville, Ky. It has been found possible to obtain yields of carbon approximating 10 pounds per 1,000 cubic feet of natural gas used, but the carbon thus produced has not graded as highly, for most uses, as that made by the older process, and probably will not meet the high standards required in the rubber industry.

The methods used in obtaining the increased yield consist in causing the natural gas to pass through a chamber containing highly heated solids and to contact the surfaces of the solids. The heating of the solids and the gas-cracking operations are alternated.

In the tests conducted by the Bureau of Mines at Louisville, a standard water-gas generator 9 feet in diameter was used; the operation consisting essentially in first heating the bed of ignited coke by air-blasting, discontinuing this, and then introducing natural gas; the cracked gas with the entrained carbon was removed through the regular gas offtakes. The cycle was repeated regularly.

The yield of carbon was approximately 7 pounds per 1,000 cubic feet of natural gas passed. The quality of the carbon was not equal to the best, but it is believed to be such that it will find use at a fair price in certain industries. Further tests will more definitely establish its value relative to carbons made by other processes.

Schaphorst's CHATS *with the* ENGINEER

By W. F. SCHAPHORST, M.E.

No More "Guesstimating" in the Modern Rubber Factory

THE trend in the modern rubber plant is to "meter" everything of importance that can be "metered." Not so many years ago, probably within the memory of every reader, there was scarcely a meter in any rubber factory aside from the water meter, and possibly the gas meter.

Even the electric meter is old as compared with economizing meters that have been developed in the last very few years. Water, gas, and electric meters were designed and installed solely for the purpose of "selling" water, gas, and electricity to a customer. They involved no thought of economy between the seller and consumer.

To install a private meter for measuring one's own steam consumption, or coal consumption, simply for the sake of knowing what was going on was considered as ridiculous as the installation of a cash register by a butcher who was himself the sole owner, dealer, helper, and janitor of the establishment. Today it is considered quite the thing for nearly every store, regardless of smallness or largeness, to have a cash register.

And similarly it has been found that it pays to know all about the steam, the CO_2, the draft, the temperatures, and the coal in one's own establishment regardless, almost, of size.

The old method was to operate a plant by sheer force and wealth. There was very little check on anything. The owner or manager simply "guesstimated." If more coal was needed it was ordered, paid for, and burned. The burning of a thousand tons of coal more one year than another was considered a sort of "act of God"—a mysterious condition that had to be tolerated.

Meterizing the Factory

Today things are decidedly different. An accurate steam meter may be placed on the switchboard any distance from the boilers. The meter tells the entire story—past and present. There is no more "guesstimating" by the owner, manager, or engineer regarding the amount of steam generated by the boilers and the amounts used in the various departments of the rubber factory. Total generation and total consumption are carefully and accurately accounted for.

The pyrometer, on the same switchboard, tells the entire story, past and present, about temperatures in the chimney, in the furnace, of the superheater, or anything else of importance. No more "guesstimating" about temperatures. Draft, CO_2, and coal are similarly metered and where desired, permanent graphical records are made.

Today, as soon as any one of the recorders shows that things are "going wrong," it is a simple matter to rectify matters because the engineer can instantly lay his finger on the cause of the change in conditions. The result is:—much fuel is saved.

Whether or not it will really pay to install a steam flow meter, pyrometer, CO_2 recorder, etc., sometimes requires careful figuring. However, fuels are so expensive, and it has been demonstrated time and again that indicators and recorders can save so much fuel, that it is indeed a small plant that cannot make recorders pay and pay big.

Carbon Black Industry in 1929

THE extraordinary growth of the carbon black industry in the United States is reflected in the production figures for 1929, which show an increase of 47 per cent over 1928, according to reports issued by the Bureau of Mines of the Department of Commerce. The total quantity produced in 1929 amounted to 366,442,000 pounds, an increase over 1928 of 117,652,000 pounds.

Total sales of carbon black in domestic and foreign buyers in 1929 amounted to 283,806,000 pounds, as compared with 280,579,000 pounds in 1928. Exports were materially higher than in 1928, but sales for domestic consumption dropped off from 202,676,000 pounds in 1928 to 191,977,000 pounds in 1929, a decline of 5 per cent.

The trend in stocks at the plants was reversed in 1929; a material decrease in stocks during 1928 was followed in 1929 by increases which totaled about three times the 1928 withdrawals. The quantity stored on December 31, 1929, amounted to 132,203,000 pounds, or 170 days' supply, as compared with 50,240,000 pounds, or 65 days' supply, on hand on January 1.

The total production of 366,442,000 pounds had a value at the plants of $18,720,000. Although this represents an increase of nearly $5,000,000 over the previous year, the average per pound declined from 5.54c to 5.11c. The latter was the lowest value or wholesale price that has been reported to the bureau since carbon black statistics were first compiled in 1919.

A total of 264,107,000,000 cubic feet of natural gas was burned in the manufacture of carbon black during 1929. This indicates an average recovery of 1.39 pounds per 1,000 cubic feet of gas, as compared with 1.42 pounds in 1928 and 1.38 in 1927.

Of the total output in 1929, 327,552,000 pounds, or 89.4 per cent, were produced by means of the channel process, and 38,890,000 pounds, or 10.6 per cent, by the thermatomic, Lewis, roller, disc and "special" processes. This indicates a slight increase in the proportion manufactured by the channel process over a year ago.

The domestic distribution of carbon black sales among the major users in 1929 was as follows:

Industry—	*Quantity (pounds)*	*P. C.*
Rubber	138,474,000	72
Ink	27,350,000	14
Paint	17,257,000	9
Miscellaneous	8,896,000	5
Total	191,977,000	100

These data indicate that the use of carbon black by the rubber industry is still the dominating factor in the trade.

The export trade in carbon black continued to expand in 1929 when a total of 91,829,000 pounds was shipped to foreign countries. This compared with shipments of 77,903,000 pounds in 1928, a gain of 18 per cent. The 1929 exports were valued at $8,271,000, an average of 9c per pound, as against 8.72c in 1928. The majority of the countries to which we export carbon black reported an increase in the trade in 1929. The United Kingdom continued as our leading carbon black customer, followed, in order, by France, Germany and Canada.

Extra copies of the Index to Volume 26 of THE RUBBER AGE may be secured upon request. It was printed as Section II of the April 10 issue.

EDITORIAL COMMENT

Semi-Annual Tire Surveys

THE preliminary figures covering the semi-annual survey of dealers' stocks of automobile tires have been released by the Rubber Division of the Department of Commerce and while the average of 75.1 tires per dealer is a slight increase over the figures as reported in the October survey, it shows a distinct drop from the number of tires in dealers' hands a year ago. While the semi-annual averages of April and October surveys are not exactly comparable, too great a change one way or the other may have great significance. A decline from last April's figures was expected in view of the retrenchments in all business, particularly those affected by the automotive industry, after the financial "upset" in November. Tire and automotive accessory dealers were particularly badly hit at that time and it is an encouraging sign to see this caution exercised by dealers in re-stocking.

At the same time the advance in the average from last October shows that dealers have confidence in early spring sales and that spring-dating stocks are being taken up in fair quantities. In other words, it looks like the tire retailing business is again on the up-grade. If prices can now be stabilized or even advanced slightly there is no reason why the tire dealers cannot come out of the late slump with considerable financial encouragement. A slight advance in tire prices at this time would go far to stimulate more sales, because of the psychological effect on car owners and with the inevitable replacement demand which must manifest itself within the next few months the result would mean a well-deserved monetary gain to the dealer fraternity.

While on the subject of the semi-annual government tire surveys, it might be remarked that while these comparisons between April and April and October and October are interesting the surveys do not tell a full story. Sales and receipts would indicate turn-overs, and even a three-cornered analysis and comparison with the last semi-annual average figure would give a more truthful picture. True, the April figure, supplemented as it is with spring-dating stocks and additional orders in anticipation of the heavy motoring seasons is expected to be higher than the October figure, but the April figure taken in conjunction with the previous October figure can show an interesting relationship.

Business Is Improving

WHILE the business situation at the middle of April shows but little change, the automotive industry and rubber goods manufacture have shown steady increases and from expressions within the trade it would appear that production will continue to make monthly gains from now on. From the report of the Conference of Statisticians in Industry, operating under the auspices of the National Industrial Conference Board it is generally conceded that the low point in the past recession has been reached and that the trend is now definitely upward. The most favorable aspects in the situation seem to be, aside from the advance in the automobile and rubber manufacturing fields, an increase in department store sales and an increasingly expanding building construction program.

In the automotive field, the latest returns show that the March production of passenger cars and trucks, estimated at 415,000 units, is 22% larger than February but 33.7% lower than the extraordinary total of March last year. March output is 10.5% below the average for the last five years while the first quarter output this year of 1,038,068 is 8.0% under the average of 1,129,844 for the first three months during the past five years. Manufacturers are strictly limiting their output according to actual consumer demand, but they increased production in April over March. New car registrations in February were 10.0% under February last year while that of trucks was only 2.2% below the record of last year. New car registrations in February showed an increase of 18% over January while new truck registrations gained 5.0%. Sixteen states reporting for March showed a gain of 56.6% over February but a decline of 11.8% under March of last year for new passenger car registrations.

While the consumption of crude rubber of all classes by manufacturers in March was 19.7% less than a year ago, it should be remembered that automobile production was less than last year. Compared with February, there was an increase of 9.7%. European interests are planning lessened production in the hope of improving prices.

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Representatives in all the rubber centers of the United States, Canada, England, France, Germany and the Middle East.

The Rubber Industry's CURRENT NEWS

Financial—Personals—New Rubber Products—
Building Operations—Manufacturing—Exports

CHICAGO RUBBER GROUP PLANS SAFETY MEETING

The Chicago Rubber Group, a division of the Chicago Section of the American Chemical Society, will hold its next meeting on May 16 at Maillard's, Jackson and Michigan Boulevards, Chicago, Ill., with factory safety as the topic for the occasion. The group has extended through the Rubber Section of the National Safety Council an invitation to all safety men interested in the rubber industry to be present at the May meeting.

R. C. Salisbury, of the Federal Division, Fisk Rubber Company, Cudahy, Wis., will be in charge of the meeting and will deliver an illustrated lecture on "Safety in the Rubber Industry." Mr. Salisbury is a member of the advisory committee of the Rubber Section of the National Safety Council.

The meeting will be preceded by a dinner at 6:30 p. m., tickets for which will cost $1.50. Reservations should be made immediately through the secretary of the group, B. W. Lewis, at Wishnick-Tumpeer, Inc., 365 East Illinois street, Chicago, Ill.

PHILA. RUBBER WORKS CO. OPERATING MILLER UNIT

The rubber reclaiming activities of the Miller Rubber Company, recently acquired subsidiary of the B. F. Goodrich Company, have been taken over by the Philadelphia Rubber Works Company. The Miller reclaiming plant, located in the Kenmore district of Akron, is now being operated as a unit of the Philadelphia company.

Acquisition of the Miller reclaiming mill increases the production of the Philadelphia company by about 450 tons a month, or approximately 10 per cent. H. G. Day, president of the Philadelphia Rubber Works Company, stated that his organization has no plans for increasing the size of the Kenmore plant in the near future.

Thermoid Company Sales Up

Sales of the Thermoid Company, manufacturer of asbestos and rubber products, showed an increase of 6 per cent during March, as compared with the corresponding month in 1929, according to Robert J. Stokes, president. Increased demand from the automotive replacement market is the most important factor in the company's improved position, Mr. Stokes says.

Rubber Floors Permitted In New York Skyscrapers

The Real Estate Board of New York has won a three-year fight against the banning of rubber, cork or composition flooring in buildings more than 150 feet high. A bill amending the New York State labor law to permit the use of such materials in fireproof buildings was passed at the recently ended session of the legislature and has been signed by Governor Franklin D. Roosevelt.

If the ban had been effective, building owners would have been compelled to tear out resilient floor materials at much expense. The building code provided that in buildings of more than 150 feet in height the floor covering should be of "incombustible material," and a ruling of the New York City Building Bureau interpreted this as prohibiting materials such as linoleum, cork or rubber.

Miller Stockholder Sues

C. Ewart, alleged owner of 75 shares of Miller Rubber Company preferred stock, petitioned last month for an injunction to prevent the sale of that firm to the B. F. Goodrich Company on the basis previously announced. Ewart said in his petition that his preferred certificates provide that in the event of the sale of the Miller Rubber Company the preferred stock is to be paid in full plus 7½ per cent and plus any accrued or unpaid dividends. The terms of the merger provided that Miller preferred shareholders would receive betwen 74/100 and 75/100 of a share of Goodrich common stock for each share of Miller preferred.

J. M. HUBER, INC., ADDS NEW RUBBER LABORATORY

The J. M. Huber Company is installing a complete rubber testing laboratory at 602 Sixty-second street, Brooklyn, N. Y. The new laboratory will be devoted exclusively to research problems co-ordinating the manufacture of carbon black with its use in rubber.

The company also operates a general rubber laboratory in connection with its main sales offices in New York City, and a production control laboratory at its largest rubber black factory in Borger, Tex.

NAT'L RUBBER MACHINERY NETS $460,714 DURING 1929

The National Rubber Machinery Company showed net income for the year ended December 31, 1929, of $460,714 after all charges, equal to $4.06 a share on the 113,420 shares of common stock outstanding. Stanley W. Harris, president, reports that the entire bonded indebtedness of $822,000 on December 31, 1929, had been retired during the year and that bank borrowings, necessitated by the retirement of the bonds, had been reduced by $50,000.

Fixed assets as of December 31, 1929, were $2,258,639. Current assets were $893,834 and current liabilities $509,654. Net current assets were $384,180. It is reported that salaries, rent and plant overhead for 1930 have been reduced by approximately $70,000 as compared with 1929.

Stockholders reduced the board of directors from 11 to nine members, electing two new members to replace four who retired. Officers re-elected are: Stanley W. Harris, president and general manager; Peter DeMattia, vice-president; M. D. Kuhlke, treasurer; Charles F. Safreed, secretary and assistant treasurer, and John Shaub, formerly of the Wellman-Seaver-Morgan Co., factory manager in charge of all plants.

New members of the board of directors are: John Shaub and Paul A. Frank. Other members re-elected are: S. W. Harris, C. F. Hoback, P. DeMattia, D. W. Maxon, attorney; M. D. Kuhlke, O. J. Kuhlke and F. L. Haveron, of J. A. Sisto & Co., New York bankers. The retiring members are B. DeMattia, Graham Adams, F. H. Grove and F. T. Coyle.

The company operates four plants, the Akron Rubber Mold plant and the Kuhlke Machine plant at Akron, the DeMattia Brothers plant at Clifton, N. J., and the Banner Machine plant at Columbiana, O. The company was organized in 1928 and common shares paying dividends at the rate of $2 annually are listed on the New York curb exchange.

Endicott-Johnson Plant Opens

The new $350,000 rubber footwear factory of the Endicott-Johnson Corporation at Johnson City, N. Y., began manufacturing operations last month. The building is of brick and steel, five stories high, 60 by 240 feet, and will furnish employment for 600 workers. George F. Johnson, president, said that the sales growth of the "Paracord" plant, completed in Johnson City two years ago, justified the erection of the new factory.

CARBON BLACK OUTPUT IS GREATER IN TEXAS

During 1929 the total production of carbon black in the Texas Panhandle was approximately 105,000,000 pounds, an increase of more than 25 per cent as compared with the production during 1928.

In this area there are twenty carbon black plants owned by eleven companies. In the Breckenridge area of north central Texas there are nine carbon black plants which produced a total of 35,901,000 pounds last year, making a grand total for the State of 140,901,000 pounds.

At this time there is an overproduction of carbon black, and in the Panhandle more than 250,000 pounds of the product are going into storage daily. In a statement on the overproduction situation, the Godfrey L. Cabot Co., which owns several carbon black plants in Texas, said:

"The very great expansion of the carbon black industry in the first half of 1929 and the falling off in the rubber business in the last half have caused a serious condition of overproduction to exist. Stocks of carbon black have now reached the highest point in history and are still increasing at a rapid rate.

"This has caused a weakening of the carbon black market. Whereas there were about a dozen new carbon black plants under construction at this time last year, the building of plants has now practically stopped, and it seems unlikely that any new ones will be started in the near future."

Aetna Rubber Lost $88,651

The Aetna Rubber Company, Ashtabula, O., showed an operating profit for 1929 of $101,307, but after depreciation, taxes and other charges, a net loss of $88,651 was shown. After dividends of $73,938, the surplus for the year was cut to $404,193. As of December 31, 1929, a ratio of nearly 3 to 1 was shown in current assets of $318,168 and current liabilities of $113,758. All expenses incidental to moving its plant to Ashtabula and bringing out new products have been charged off.

Californian Goodyear Profits

The Goodyear Tire & Rubber Company of California showed net income for 1929 of $2,293,568 after taxes, depreciation, interest and other charges, equal after preferred dividends to $43.35 a share on the 40,000 shares of common stock, all of which is owned by the parent company at Akron. Sales were $26,233,596 for the year. The Goodyear Textile Mills Company, whose common stock is owned by the Goodyear Tire & Rubber Company of California, earned $223,872 in 1929 as compared with $236,074 in 1928.

Foote Brothers Business Up

New business of Foote Brothers Gear & Machine Company, Chicago, Ill., in the first quarter of 1930 approximated $2,500,000, a record for the company. New business in March gained 111 per cent over February and was nearly 120 per cent greater than in January. The company manufactures speed reducers and IXL gears as well as other products.

Francis D. Wanning

Frances Downs Wanning, vice-president of the Farrel-Birmingham Company, Inc., Ansonia, Conn., died at the New Haven hospital on April 7 after an illness extending over six months, complicated at the last by erysipelas. Mr. Wanning, who was 57 years old, had been associated with the Farrel-Birmingham Company and its predecessor since 1894, the year in which he was graduated from Yale University.

Born at Shelton, Conn., on March 11, 1873, the son of Henry F. Wanning and

F. D. WANNING

Harriet Downs Wanning, he was a resident of that town all his life. Beginning in the engineering department of the Birmingham Iron Foundry, he entered the business end of the company in the capacity of secretary, continuing in close association with his father its marked progress and success. He was named vice-president when the firm was merged with the Farrel Foundry & Machine Company.

More than 250 friends and relatives attended the funeral services on April 9, and employes of the Farrel-Birmingham Company acted as pallbearers. Mr. Wanning is survived by his widow, three sons, and his mother and father.

William H. Schulz

William H. Schulz, head of the cotton hose department of the Whitehead Brothers Rubber Company, Trenton, N. J., died March 17 at his home following a long illness. Mr. Schulz, who was 49 years old at the time of his death, had been connected with the rubber industry since he was a boy. He was formerly associated with the old United & Globe Rubber Manufacturing Company, the Murray Rubber Company, and the Woven Steel Hose & Rubber Company at Trenton, N. J., the Quaker City Rubber Company at Philadelphia, Pa., and the Hewitt Rubber Company at Buffalo, N. Y.

Howard G. Goodwin

Howard G. Goodwin, former secretary-treasurer of the Independent Rubber Company, now dissolved, died March 31 at City Hospital, Akron, O. He was a life-long resident of Akron and a graduate of Purdue University.

DAYTON RUBBER PLANT INCREASING BUSINESS

The Dayton Rubber Manufacturing Company, Dayton, O., is adding 100 additional workers to its factory force in order to meet the increasing demand for its products, according to a statement made by John A. MacMillan, president, on April 8. Contracts with new distributors have been closed since the first of the year calling for $2,000,000 worth of tires and other rubber goods.

Large contracts have been coming in from Texas and California, according to Mr. MacMillan. Contracts obtained in Texas in March call for $750,000 worth of products, while a distributor at Los Angeles disposed of goods valued at $150,000 in the same month, the biggest sale recorded in its history. D. W. Warden, vice-president, who has just returned from a Pacific Coast trip, estimated that the Los Angeles firm will sell more than $1,500,000 worth of Dayton products this year.

U. S. Rubber to Refund Notes

It was announced at the annual stockholders' meeting of the United States Rubber Company on April 15 that the company's note issue that falls due in August will be refunded in full. William de Krafft, chairman of the finance committee, said in response to a stockholder's question, "Although we have formulated no definite plan for the refunding of the $18,336,000 of 7½ per cent notes due August 1, 1930, we have definite assurance that we will be able to take care of the refunding of these notes at the proper time."

Rubber Stocks Action Mixed

The action of rubber company securities during the fortnight was mixed, with most of the leaders showing appreciable declines. Goodrich showed weakness on the belief that the company would find a new bond issue necessary in the near future. India climbed to new high levels for the year, as did Raybestos-Manhattan on the report of a possible merger with Johns-Manville. Prices of the leading rubber company shares on April 21 compare as folows:

	Last Price		High	Low
	Apr. 21	Apr. 3	—1930—	
Ajax	2⅛	2⅜	2½	1⅝
Falls	—	—	4¾	3
Faultless	37	—	37	34⅜
Firestone	26½	28⅞	33⅛	26
do. 6% pfd.	83⅞	—	87⅞	79¾
Fisk	4¾	5	5½	3
do. 1st pfd.	19	19	21	13
General	—	—	163	135½
do. pfd.	—	90	91	88½
Goodrich	50	54¼	58½	40¼
do. pfd.	101¼	—	104½	95⅝
Goodyear	84½	91½	96⅞	62
do. 1st pfd.	101½	—	102	90
India	24½	19	18	8½
Intercontinental	6¼	—	7½	4¼
Kelly Springfield	5¼	5	6⅛	3¼
do. 6% pfd.	—	—	39	29
Lee	8¾	—	11	6¼
Miller	—	5⅛	5⅜	3⅞
do. pfd.	—	—	52	18
Mohawk	12	—	14	8½
do. pfd.	50	—	55	50
Norwalk	3	2½	4	⅞
Pirelli	44½	—	50⅞	44¼
Raybestos-Manhattan	54½	47	58⅞	33
Seiberling	10½	14	18½	10¼
do. pfd.	—	—	78	46½
U. S. Rubber	32½	32⅞	35	21⅛
do. pfd.	57¾	62	63⅞	47¾

Names in the News

W. O. RUTHERFORD, president of the Pennsylvania Rubber Company, Jeannette, Pa., has returned from a business trip to the Pacific coast. During the trip, he spoke at several region sales conferences.

W. B. KOCHENDERFER, formerly in charge of engineering and sales for the Lake Erie Engineering Corporation, Buffalo, N. Y., has been appointed chief engineer of the hydraulic machinery department of R. D. Wood & Company, Philadelphia, Pa., a manufacturer of hydraulic machinery for the rubber industry.

AL FRY, former tire dealer of Ventura, Cal., has been appointed general manager for the Dayton Rubber Manufacturing Company in Ventura, Santa Barbara and San Luis Obispo counties. His former retail business has been absorbed as a unit in the chain of Nelson & Price, Ltd., Dayton distributors for southern California.

HARVEY S. FIRESTONE, president of the Firestone Tire & Rubber Company, was the principal speaker at a meeting of Firestone tire dealers at the George Washington Hotel, Jacksonville, Fla., on April 3.

DONALD HOOD, former treasurer of the Hood Rubber Company, visited Akron, O., with Mrs. Hood on April 3 and inspected the airship dock of the Goodyear-Zeppelin Corporation. Mr. Hood served in Akron as a naval lieutenant in charge of airplane construction during the World War and has continued his interest in aviation. He now resides in Brookline, Mass.

PAUL R. MAHONY, executive vice-president of the Internaitonal B. F. Goodrich Company, will speak on "The Right Road Through South America" at the 17th National Foreign Trade Convention in Los Angeles next month. The convention, which is sponsored by the National Foreign Trade Council, will be held on May 21, 22 and 23.

S. STANGER has been appointed sales manager for Scotland for the Goodyear Tire & Rubber Company (Great Britain), Ltd., with headquarters at Glasgow. He succeeds A. G. ROBERTSON, who was promoted to the post of general sales manager of the company.

GEORGE H. HIMES has been appointed manager of the United States Rubber Company district sales office at Memphis, Tenn. This district sales office was only recently created and will be headquarters for branch sales offices in Arkansas and part of Kentucky, Tennessee and Mississippi. Mr. Himes, a graduate of Boston Technical University, has been connected with the tire industry for the past eight years and was formerly branch manager for a leading tire manufacturer. Previously he spent five years in the United States Naval Air Service as a test pilot and flight commander.

O'SHAUGHNESSY TO HEAD U. S. TIRE DEPARTMENT

Joseph F. O'Shaughnessy has been appointed general manager of the tire department of the United States Rubber Company, with headquarters at Detroit, Mich. He had previously been assistant to L. D. Tompkins, who, in addition to his duties as a vice-president and member of the executive committee of the company, had been acting as general manager of the tire department. Mr. Tompkins is also active in the management and operation of the United States Rubber Company plantations in the Far East, and the change has been made to allow him to devote his full time to these other company activities.

J. F. O'SHAUGHNESSY

Mr. O'Shaughnessy in his new position will have complete charge of all United States tire activities. He joined the company in September, 1929, when tire headquarters were transferred from New York City to Detroit. Mr. O'Shaughnessy's entire business career has been centered upon merchandising lines. Prior to last fall, he was director of sales of the Du Pont Viscoloid Company, in which connection he was associated for five years with F. B. Davis, Jr., who was president and general manager of that organization until December, 1928, when he was elected president of the United States Rubber Company.

C. EDWARD HYKE, for several years manager of the Willoughby, O., plant of the Ohio Rubber Company, resigned that position on March 30. He has been in poor health since last November.

LYNN HARVEY, manager of tire sales for the Dayton Rubber Manufacturing Company,, Dayton, O., spent several days last month in Houston and Dallas, Tex. He was accompanied by HARRY MOORADIAN, factory representative, and HARRY CORBETT, divisional sales manager.

FRANK H. ADAMS, former treasurer of the Goodyear Tire & Rubber Company, has been appointed a member of the Metropolitan Park Board of Akron, O. He has always been actively interested in the park board's activities and in conservation work.

MIAH MARCUS, treasurer of the Puritan Rubber Company, Trenton, N. J., has sailed for a trip of several weeks through Europe.

THOMAS C. BARRINGTON, United States trade commissioner at Batavia, spoke on trade conditions on the island of Java before the foreign trade committee of the Akron Chamber of Commerce on April 15.

F. B. DAVIS, JR., president and chairman of the United States Rubber Company, has been named a trustee of the New York Trust Company.

EMMETT B. REINBOLD has joined the technical staff of J. M. Huber, Inc., and has been assigned to the carbon black research division with headquarters at Brooklyn, N. Y. Mr. Reinbold is a graduate of Muhlenberg College and received his Master's degree at Cornell University. For the past two years he has been connected with the testing division of the B. F. Goodrich Company at Akron, O. NATHANIEL MILLMAN, formerly a chemical engineer with the International Coal Carbonization Company, has also joined the carbon black research division of J. M. Huber, Inc.

T. M. GIRDLER, a director of the Goodyear Tire & Rubber Company, has been named as a director of the Chase National Bank, New York City, which has become through recent mergers the largest bank in the world with resources of $3,000,000,000.

COUNT HENRI DE VAULX, president of the Federation Aeronautique Internationale, was a visitor to the plant of the Goodyear-Zeppelin Corporation at Akron, O., early this month. He brought the message that France would send two balloons to take part in the international balloon races at Cleveland on August 30. Two weeks later he was killed in the crash of a Canadian Colonial Airways plane at Jersey City, N. J., on April 18.

CATALPO
for
Footwear

Rubber News Around the World

DOMINION RUBBER SHOWS NET OF $341,967 IN 1929

The Dominion Rubber Company, Ltd., has reported for the year ended December 31, 1929, net income of $341,967 after depreciation, interest and income taxes, equivalent after 7 per cent preferred dividends to $1.18 a share on 112,220 no-par shares of common stock. This compares with net income of $1,183,305, or $8.67 a common share, in 1928.

While there was a substantial increase in unit sales during the past year as compared with 1928, lower prices resulted in the dollar value of net sales standing at $20,130,677, as against $20,249,954 in 1928. The abrupt drop in net income was due to higher costs incidental to changing over to new operating, manufacturing and distributing methods. The company is controlled by the United States Rubber Company.

GERMAN RUBBER COMPANY INCREASES ITS DIVIDEND

The Continental Caoutchouc & Gutta Percha Company of Hanover, sometimes referred to as the German rubber trust, has increased its rate of dividend from 7 per cent, last year's figures, to 9 per cent this year. The Continental firm acquired an interest in the Hannoversche Gummiwerke Excelsior A.-G. in the spring of 1929 and has extended its interests into the Peters Union and the Titania Works, apparently with successful results.

There has been a rumor current in European industrial circles that the Opel Motor Works has secured some participation in the Continental combine. It is stated at the offices of the motor company, however, that they have no share in the affairs of the rubber trust.

February Golf Ball Imports

Imports of golf balls into the United States during February amounted to 158,500 balls, valued at $53,466. This is the largest quantity of balls imported since last August and compares with imports of only 37,296 balls in January and with imports of 78,636 balls in February, 1929. The unit value of February imports was 33.7 cents per ball as compared to 32.2 cents in January and 36.6 cents in December. All except 192 of the balls were imported from the United Kingdom.

New Rubber Trade Assn. Head

The Rubber Trade Association of London has elected A. Bendixsen as chairman for the ensuing year. Mr. Bendixsen, a native of Denmark, entered the rubber trade in 1911 and for the past eight years has been managing director of A. Bendixsen & Co.

Tan Kah Kee in British Market

Tan Kah Kee, manufacturer of tires, footwear and belting at Singapore, is to start a selling campaign through agents in London on canvas rubber-soled footwear. The production of rubber footwear was begun by this firm in 1922 and has now been expanded to a capacity of 50,000 pairs daily.

DRAFT MARINE INSURANCE FOR RUBBER SHIPMENTS

Clauses for the insurance of rubber have been agreed between the London Rubber Trade Association and the Institute of London Underwriters. These clauses follow very closely the conditions upon which rubber shipments have hitherto been insured, which means that they will cover pactically all loss or damage except ordinary mould and mildew.

One of the most important functions of the Institute of London Underwriters is the drafting of standard marine insurance clauses for particular trades, and for many years it has pursued a policy of standardizing clauses for the staple trades by agreement with the various trade associations concerned.

AKRON EXPORT MEN WILL FORM NEW ORGANIZATION

Harris Waite, export manager of the Seiberling Rubber Company, and other members of an organization committee met on April 8 to draw up plans for the formation of an Exporters Club for Akron. The club will be open to all Akron persons interested in merchandising abroad and will meet monthly when it is planned to have speakers familiar with the foreign markets appear before the members.

The Exporters Club will be parented by the transportation committee of the Akron Chamber of Commerce, and its purpose will be to expand the markets for Akron-made products abroad.

Goodyear Tyre & Rubber Profit

The Goodyear Tyre & Rubber Company (Great Britain), Ltd., has reported for the year of 1929 net profit of £114,288, or approximately $557,150, after interest on debenture stock, preliminary expenses and proportion of debenture issue expenses and discount had been written off. The net profit on trading was £159,533, or more than double the amount in the preceding year, which was £75,983.

Rubber Trade in Germany Is Making Rapid Advances

Germany during 1929 made another rapid advance in its rubber goods trade when the value of exports exceeded imports at a larger figure than at any time since the World War, namely, by $21,765,197, according to the Commerce Department's rubber division. But the most outstanding feature of the year's trade was that, for the first time since the war, the value of exports surpassed those of the pre-war year 1913 by more than $1,224,700.

German exports of rubber goods for 1929 were valued at $31,287,054, an increase of 14 per cent as compared with 1928. Although not a very disturbing factor in the trade of the nation, German imports of rubber goods instead of decreasing each year are slightly increasing. Imports for 1929 advanced nearly 2 per cent as compared with the previous year, while the value reached $9,521,857.

Sales Values Show Decline

Sales values of finished products sold in Germany during the year declined, but this was compensated for by an increase in exports, it is learned. The increase in exports of German rubber manufacturers for the year amounted to about 20 per cent over 1928, while imports of manufactured rubber goods gained some 17 per cent.

It is also an unfavorable matter to record that the producing capacity of German rubber plants at present somewhat exceeds the country's consumptive needs aside from the imports.

Foreign Companies Are Active

German rubber interests are following with some anxiety the efforts exerted by foreign manufacturers to increase their sales in the German market, as well as their plans for plant expansion and installation of more efficient equipment. Rubber footwear imports into Germany underwent a remarkable expansion during the year, due to the invasion of Russian, Swedish, and Czechoslovakian manufacturers. These imports, only 752 metric quintals in 1928, rose to 2,704 quintals during 1929. Of this latter total the United States shipped 660 quintals, Finland 128 quintals, Latvia 291 quintals, Soviet Russia 413 quintals, Sweden 457 quintals and Czechoslovakia 396 quintals.

An interesting angle to this is that during 1928 America exports 452 out of the 752 quintals imported by Germany from all sources. The total amount of rubber goods imported by Germany was 79,074 quintals, valued at 39,991,000 reichsmarks, compared with 67,959 quintals, valued at 38,328,000 reichsmarks during 1928.

Rubber Goods and Specialties

Diamond White King Balloon

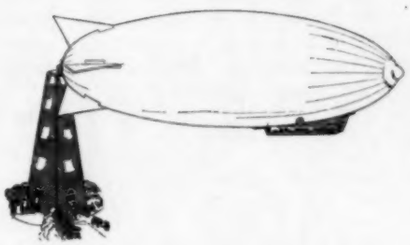
Chief among the 1930 line of the Diamond Rubber Company, Akron, O., subsidiary of the B. F. Goodrich Company, is the White King six-ply balloon casing. Its white sidewall makes it present a handsome appearance, and its heavy shoulders and flexible carcass make it practically immune to in-

juries which ordinarily result from road shocks. The hinge centre tread design is said to assure positive contact with the ground and to develop not only road-gripping ability but also uniformity of tread wear.

Inflatable Beach Toad

The smallest in the line of Swim-Toys manufactured by the Seamless Rubber Company, New Haven, Conn., this inflatable beach toad is especialy adapted for the use and enjoyment of young children. It is 18½ inches in length and, when inflated, can hold up not only a youngster but an average adult in the water. Bright yellow and green colorings are used to give it an attractive ap-

pearance, and the best quality of rubber and workmanship is employed in its construction. The manufacturer claims it to be an incentive in itself to more bathing by the youngster at the beach.



Anderson Toy Airships

The Anderson Rubber Company, Akron, O., is now making two sets of toy dirigible airships with mooring masts, each of which is handsome in appearance and easily assembled. Under the name of the Young America airship set, the company is offering a "Zep" type balloon printed on two sides with a mast nine inches long. Its No. 2 Baby Blimp is made of silver rubber and is equipped with cabin and rudders. It inflates to 24 inches in length and may be attached to a large cardboard mooring mast in brick design with four doors and 16 windows. Either set is packed complete in an envelope.

Hard Rubber Submarine Cables

The extrusion of plasticized hard rubber composition about a continuous cable, rather than resorting to the application of the rubber followed by vulcanization, is a development contained in a recent patent assigned by Robert R. Williams to the Western Electric Company. The invention features the continuous extrusion of a plastic material about an advancing core of cable, properly covered with the necessary magnetically permeable alloy and other insulating materials. In practising this method, sheets of vulcanized hard rubber are rendered plastic by working them in standard rubber mills, the rolls of which are heated, or in some other equivalent manner. The term "hard rubber" is used by the inventor to also include compositions sometimes referred to as "semi-hard rubber" in which the sulfur component may be as low as 15 per cent.

Step Plates in Color

The Ebonite Products Company, 895 South Main street, Akron, O., is offering a line of rubber step plates in red, green or black, with the name of the dealer or of the car owner molded into the centre of the plate. This not only affords a means of identification but also gives a touch of individuality. The plates are 7¼ by 15 inches in size, with raised ribs for scraping mud from the shoes when entering the car. The lettering is in white letters to contrast with the red, green or black background, and a maximum of ten letters, including two initials, can be molded in each line.

Pennsylvania Bus-Truck Balloon

The Pennsylvania Rubber Company, Jeannette Pa., has augmented its line with a new bus-truck balloon casing, which is said to give mileage in commercial service comparable to the highest being recorded by high-pressure bus truck tires. The mileage equivalent is obtained, according to the company,

by a 25 per cent greater tread width and flat contour, the latter assuring slow and even wear. The principle of armored shoulders and sidewalls is retained, and the double bead provides firm anchorge so as to make it impossible for the tire to creep or rock on the rim.

Airubber Camp Mattress

New and improved construction has been adopted by the New York Rubber Corporation, Beacon, N. Y., for its Airubber camp mattresses. The present styles are deeper and have considerably more air capacity, making them softer and more comfortable.

There has, however, been no increase in weight made to effect this change. The "Light Six" size of 25 by 75 inches weighs approximately six pounds, and the "Big Ten" size of 32 by 75 inches weighs about ten pounds. The mattress is of high quality rubberized khaki fabric and is made strongly for rough use.

Current Crude Rubber Items

NEW RUBBER PLANTS ARE FOUND IN THE UKRAINE

In addition to the possibility of utilizing the plant chondrilla for the production of rubber, Soviet scientists have recently reported several other rubber-bearing plants. Among these is the asklepias cornuit—a plant found in certain parts of the Ukraine.

The Soviet scientist, Voynovsky, who has conducted experimental work on this plant, reports that about 450 kilograms of rubber can be produced from one hectare. About 130 varieties have been located and the Kiev experimental station is conducting further experiments to determine its adaptability as a commercial substitute for rubber. A number of rubber products have already been produced experimentally from the juice of asklepias.

EARNINGS ARE REPORTED BY PLANTATIONS TRUST

The Rubber Plantations Investment Trust, Ltd., reports for the year ended December 31, 1929, profit of £252,550 exclusive of profit of subsidiary. After deducting £63,616 for British and Dutch Indies taxes and £11,400 for depreciation of properties, net income was £177,534. Deficit was £1,507 after transferring £50,000 from dividend equalization reserve and payment of dividends and directors remuneration dividend, which deducted from £63,382 balance of 1928, leaves £61,875 carried forward.

The Rubber Plantations Investment Trust, Ltd., is one of the two rubber producing firms whose shares are traded in on the New York Curb Exchange.

African Estate Discontinues

Directors of the East African Rubber Plantation Company have issued accounts for the ten and a half years to March 15, 1930, showing that the debit to profit and loss account has been increased from £7,351 to £8,229, and proposing that the company be wound up voluntarily. The firm was formed in 1909, and the only dividend it paid was 6 per cent in respect of 1911-12.

Studies Foreign Markets

Jerome Lewine, of H. Hentz & Company, member of the board of governors of the Rubber Exchange of New York, is now in Europe on a ten-week trip for the purpose of studying the position of foreign commodity markets. He is also president of the National Raw Silk Exchange.

Rubber stocks at Para increased to 3,447 tons at the end of January. The month was marked by the record shipment of 265 tons to South Brazil, occasioned by the new Pirelli tire factory at Sao Paulo.

DEALERS' RUBBER STOCKS REPORTED FOR MARCH

Dealers' stocks of crude rubber in the Far East on March 31 totaled 17,000 tons, according to the Far East Rubber Census report received by the Rubber Exchange of New York. The bulk of the stocks were held in the Federated Malay States, where 11,730 tons were on hand.

March declared production of Federated Malay States, Straits Settlements, Johore, Kedah, Kalentan, Perlis and Trangganua was 17,996 tons.

The census covers estates of over 100 acres.

MALAYAN PLANTERS ASK CUT IN EXPORT DUTIES

Rubber planters in Malaya favor a reduction of export duties on the commodity as a measure of assisting the industry, according to a cablegram from Singapore to the Rubber Exchange of New York. The cable reads:

"The government recently sent letters to chambers of commerce and planting associations of Malaya, inquiring whether the appointment of a committee to consider ways and means of assisting the rubber industry could produce useful results.

"Among the suggestions which were received were the following: Waiving or reducing the export duties, and suspending rents on rubber land during the present slump, or until such time as the price is improved to an economic figure.

"Another proposal put forward was the of a further levy of an export tax on a sliding scale to be based on the price, and which is to be placed at the government's disposal for new uses and other purposes."

ACCURACY IS REQUESTED FROM LATEX IMPORTERS

Importers of liquid latex and latex concentrates in the form of liquids or pastes are requested to clearly specify on "importer's declarations" filed with the customs, the actual dry rubber content in pounds of all latex imported, so that accuracy of the import statistics on rubber may be assured. This practice is already being followed by leading importers.

This notice should be brought to the attention of clerks who prepare the importer's declarations and care should be exercised to show accurately the dry rubber content of latex imports. The variance in dry rubber content of different latex concentrates makes it desirable to use a regular conversion factor for estimating the dry rubber content from declarations showing liquid latex imports in gallons only. The practice of estimating imports in pounds on the basis of three pounds of dry rubber per gallon of latex will be discontinued.

Closing Prices on Rubber Exchange of New York, Inc.

FROM APRIL 4 TO APRIL 19, 1930

		Spot	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Sales
Standard No. 1 Contract of 10 Tons															
April	4	——	——	15.35	15.63	15.90	16.10	16.30	16.46	16.61	16.77	16.97	17.17	17.37	31
	5	——	——	15.35	15.63	15.90	16.08	16.22	16.41	16.59	16.75	17.00	17.20	17.40	8
	7	——	——	15.40	15.62	15.85	16.05	16.26	16.41	16.55	16.70	16.91	17.11	17.31	11
	8	——	——	15.40	15.62	15.85	16.05	16.27	16.43	16.59	16.76	16.96	17.16	17.36	3
	9	——	——	15.22	15.47	15.72	15.94	16.14	16.30	16.46	16.62	16.84	17.04	17.24	5
	10	——	——	15.35	15.54	15.73	15.95	16.17	16.32	16.47	16.60	16.82	17.02	17.22	24
	11	——	——	15.40	15.63	15.86	16.06	16.26	16.43	16.59	16.76	16.96	17.16	17.36	2
	12	——	——	15.30	15.51	15.73	15.91	16.10	16.29	16.48	16.65	16.85	17.05	17.25	9
	14	——	——	15.02	15.18	15.45	15.63	15.82	16.02	16.21	16.41	16.61	16.81	17.01	68
	15	——	——	15.05	15.22	15.40	15.57	15.75	15.98	16.18	16.38	16.58	16.78	16.98	9
	16	——	——	15.20	15.38	15.54	15.74	15.94	16.14	16.33	16.52	16.72	16.92	17.12	18
	17	——	——	15.25	15.44	15.63	15.82	15.98	16.20	16.40	16.60	16.80	17.00	17.20	9
"A" Contract of 2½ Tons															
April	4	15.20	15.00	15.20	15.50	15.70	15.90	16.20	16.40	16.50	16.70	16.90	17.10	17.30	480
	5	15.20	15.00	15.20	15.40	15.70	15.80	16.00	16.20	16.30	16.60	16.80	17.00	17.20	55
	7	15.40	15.00	15.20	15.40	15.60	15.80	16.10	16.30	16.40	16.60	16.80	17.00	17.20	107
	8	15.30	15.00	15.20	15.40	15.70	15.80	16.00	16.30	16.40	16.60	16.80	17.00	17.20	48
	9	15.00	14.90	15.10	15.30	15.50	15.70	15.90	16.10	16.30	16.50	16.80	16.90	17.10	114
	10	15.10	14.80	15.20	15.30	15.50	15.70	16.00	16.10	16.30	16.50	16.70	16.90	17.10	156
	11	15.20	15.00	15.30	15.40	15.60	15.80	16.10	16.30	16.40	16.60	16.80	17.00	17.20	153
	12	15.30	14.80	15.10	15.30	15.60	15.70	15.90	16.10	16.20	16.40	16.60	16.80	17.00	24
	14	14.90	14.60	14.80	15.00	15.20	15.40	15.60	15.80	16.00	16.20	16.50	16.60	16.80	382
	15	14.90	14.70	14.90	15.00	15.20	15.40	15.60	15.80	16.00	16.20	16.40	16.60	16.80	179
	16	15.00	14.80	15.00	15.20	15.40	15.60	15.80	16.00	16.20	16.40	16.60	16.80	17.00	402
	17	14.90	14.80	15.00	15.20	15.40	15.60	15.80	16.00	16.20	16.40	16.60	16.80	17.00	40

CATALPO
for
Inner Tubes

U. S. RUBBER COMPANY CAMPAIGN AGAINST WASTE

An intensive campaign against waste is being conducted during April at the tire plant of the United States Rubber Company, at Detroit. As all known forms of waste are well under control, the intensive campaign is designed primarily to enlist the creative thought of the workman on the bench by offering him substantial cash awards for practical suggestions tending to cut down unrecognized forms of waste in time, labor or materials.

Elaborate displays of waste products, bulletins and posters freely exhibited throughout the plant, and addresses to the workmen on the subject of waste, feature the campaign.

The intensive April drive is the first of its kind instituted at the plant, although for the past thirteen years workers have been encouraged to send in suggestions for improving plant conditions or processes. The suggestor receives a cash award depending in amount upon the value of his suggestion. During the past year more than 500 such suggestions came to the management from the men on the bench, and 25 per cent of the suggestions were found to be of value, according to Montague A. Clark, industrial relations manager.

During the past years, also, a merit system was instituted. The suggestor, in addition to a cash award, received a merit mark depending upon the value of his suggestion. At the close of the year the eight leading men received cash bonuses varying in amounts up to $125.

Ajax Meeting Is Adjourned

The stockholders' meeting of the Ajax Rubber Company, scheduled for April 15, was adjourned, owing to the lack of a quorum. The meeting date has been postponed to May 30.

Fisk Has 400 Patents

The Fisk Rubber Company, Chicopee Falls, Mass., now has pending before the United States Patent Office at Washington more than 150 patent applications for its inventions and owns more than 400 United States patents. In addition to its patents, the company also owns various trade-marks, chief among which is the Fisk "Time to Re-Tire" Boy, which is registered in this and 40 other countries.

CATALPO

for

Cushion Stocks

Millhand Wins $23,130

John Krispotek, a millhand in the Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, Inc., at Passaic, N. J., was the winner of $23,130 in the British Grand National Steeplechase. A month previous he had sent $1 to the overseas division of the Mutual Club of London, and the victory of Shaun Goilin in the race brought him the prize.

Goodyear Ships Largest Belt

The largest roll of conveyor belting ever shipped from the Goodyear Tire & Rubber Company's Akron plant recently was sent to Heyl & Patterson, Inc., an engineering firm of Pittsburgh, Pa. The huge roll of belting, 10 feet, 6 inches in diameter, weighed 11 tons and is believed to be the largest continuous roll of belting ever manufactured. The diameter of the roll prohibited crating inside the factory, as it would not have cleared the doors when boxed. The belt, 1,310 feet long and 48 inches wide, will be installed for the Helvetia Coal Mining Company, Yatesboro, Pa.

Government Specifications

The Federal Specifications Board is submitting to representative manufacturers revised specifications for surgeons' rubber aprons and for rubber sheeting, and is resubmitting a proposed revision of the specification for colon tubes. The board will send copies of these specifications to any firm interested and will be glad to receive any comment or suggestions as to changes which may be thought desirable. These comments should be sent to reach the board by May 2 to receive attention from the technical committee considering the subject.

Castle Rubber to Build

The Castle Rubber Company, manufacturer of mechanical molded rubber goods at Butler, Pa., has awarded a contract for the construction of a one-story, 72 by 325 ft. rubber manufacturing plant and 36 by 40 ft. power house to L. Etzel, Great Belt, Pa. The company specializes in packer and swab rubbers for oil fields and other cylindrical wrapped goods and all kinds of special molded goods that can be made in 24 by 24 presses. Russell J. Turner is president of the company, and N. E. Brown is secretary and treasurer.

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CHILLICOTHE TIRE PLANT IS SOLD FOR $22,000

The plant of the former Chillicothe Tire & Rubber Company at Chillicothe, O., was sold by Sheriff Fox on March 31 to John P. Phillips for $22,000, having been appraised at $30,000. The sale was made in connection with the case of T. Ewing Argan-bright, as county treasurer, against the company for delinquent taxes.

Mr. Phillips, the purchaser, who had a $40,000 mortgage on the plant, stated that his future plans for the structure had not yet been formulated. At present certain parts of it are rented, one section being used by the Auto Transport Company in the operation of city buses.

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LATE MARKET PRICES

RUBBER—COTTONS AND FABRICS—CHEMICALS

NEW YORK, APRIL 21, 1930

RUBBER

Crude

CRUDE rubber again dropped below the 15-cent level during the fortnight, despite the valiant attempts of the producing interests to bolster the price by resorting to a tapping holiday during May. The effect of the steadily mounting world stocks has been too great to be overcome by a program that may take 30,000 tons of the commodity off the market.

The closing spot price quotations on the New York market have fluctuated over a range even more narrow than that of the month of March, but a lower one. In the two weeks from April 7 to April 21, these quotations have held steadily within a spread of three-eighths of a point, the high being 15¼ cents a pound and the low, 14⅞ cents.

Whether the May tapping vacation will have any ultimate effect on the price of the commodity can hardly be determined until a reasonable period of time has elapsed. It is believed in some circles that even the small amount expected to be withheld from the market will be reduced by possible "flush" yields after the resting period.

Prices quoted on the New York outside market on April 21 were as follows:

Plantations—

Ribbed Smoked Sheets—			
Spot-Apr.		.14⅞@	.15⅛
May-June		.15 @	.15¼
July-Sept.		.15⅝@	.15⅞
First Latex, crepe spot		.15⅛@	.15⅜
Amber Crepe, No. 2		.14 @	.14¼
Amber Crepe, No. 3		.13¾@	.14
Amber Crepe, No. 4		.13⅝@	.13⅞
Brown Crepe, Clean thin		.13⅝@	.14
Brown Crepe, specky		.13⅜@	.13¾
Liquid Latex, per gal.		.90 @	

Paras—

Up-river Fine		.16¼@	—
Up-river Medium		Nominal	
Up-river Coarse		.07¾@	—
Acre Bolivian, fine		.16¾@	—
Caucho Ball, Upper		.08 @	—
Islands, fine		Nominal	

Centrals—

Central, scrap		.08¼@	—
Esmeraldas		.08¼@	—

Balata—

Block, Colombia		Nominal	
Block, Ciudad		.40 @	.41

LONDON MARKET

(Closed for holiday)

SINGAPORE MARKET

(Closed for holiday)

Scrap

March production of reclaimed rubber was higher than in February, and April output is expected to be still higher. Demand for scrap rubber is, therefore, somewhat heavier, and prices are becoming firmer. Latest quotations were as follows:

(Prices to Consumer)

Auto tire peelings	ton	27.50	@30.00
Standard White auto	ton	40.00	@42.50
Mixed auto	ton	17.50	@19.00
Bicycle tires	ton	15.00	@17.00
Clean solid truck tires	ton	24.50	@25.00
Boots and shoes	cwt.	1.38	@ 1.40
Arctics, untrimmed	lb.	.00⅝@	.01
Inner tubes, No. 1	lb.	.07 @	.07¼
Inner tubes, No. 2, compounded	lb.	.03⅝@	.03¾
Inner Tubes, Red	lb.	.03⅝@	.03¾
Air Brake Hose	ton	17.50	@20.00
Rubber Hose	ton	17.50	@20.00

Reclaimed

Considering the Rubber Manufacturers Association figures as 74.8 complete, the consumption of reclaimed rubber during March totaled 15,241 long tons as compared with 14,559 long tons in February. The amount used in proportion to crude rubber consumption was lower, however, and has been steadily dropping since November. Late prices follow:

High Tensile

Super-Reclaim No. 1 Black	lb.	.11⅝@	.12
High Tensile Red	lb.	.10⅝@	.11

Shoe

Unwashed	lb.	.07 @	.07⅛
Washed	lb.	.09 @	.09½

Tube

No. 1 (Floating)	lb.	.12 @	.12¼
No. 2 (Compounded)	lb.	.09 @	.09½

Tires

Black	lb.	.07 @	.07¼
Black, selected tires	lb.	.07¼@	.07⅜
Dark Gray	lb.	.08¼@	.08½
Light Gray	lb.	.09⅛@	.10
White	lb.	.11 @	.11½
Truck, Heavy Gravity	lb.	.07 @	.07¼
Truck, Light Gravity	lb.	.07¼@	.07½

Miscellaneous

Mechanical blends	lb.	.06 @	.06½
Red	lb.	.10½@	.11

COTTON and FABRICS

Cotton

COTTON prices, as measured by the closing spot quotations for the middling upland grade, continue above the 16-cent level during April, but closed the period 60 points lower than on April 4. The Co-operatives are financially able to keep whatever cotton they may receive on contract, and this may mean the removal from the trade of upward of 1,000,000 bales until the world is ready to absorb them at prices appreciably higher than those now ruling.

Domestic sales of standard cotton cloths during March showed an increase of 48,000,000 yards over those of February, while production decreased 5,000,000 yards. This is construed to indicate that the mills have the situation well in hand.

The high, low and closing prices on the New York Cotton Exchange on April 21 were as follows:

	High	Low	Close	Close
		Apr. 21		Apr. 5
May	15.98	15.76	15.76	16.50
July	16.10	15.92	15.92	16.58
Oct.	15.31	15.15	15.15	15.76

Tire Fabrics

Tire factories used 18,355,969 pounds of cotton fabric in February. Late closing prices for the various grades follow:

CORD

Peeler, carded, 28/5/3	lb.	.42¼@	.42½
Peeler, carded, 23/4/3	lb.	.44¾@	.45
Peeler, carded, 13/3/3	lb.	.38½@	.39
Peeler, carded, 15/3/2	lb.	.39½@	.40
Egyptian, carded, 23/5/3	lb.	.48¼@	.48½
Egyptian, combed, 23/5/3	lb.	.53 @	.53½

CHAFERS

Carded, American, 8 oz.	lb.	.36½@	.37
Carded, American, 10 oz.	lb.	.37½@	.38
Carded, American, 12 oz.	lb.	.36 @	.37
Carded, American, 14 oz.	lb.	.35 @	.40

LENO BREAKER

Carded, American, 8¼ oz.	lb.	.37 @	.41
Carded, American, 10¼ oz.	lb.	.37 @	.41

SQUARE WOVEN

Carded, American, 17¼ oz. 22-11 ply	lb.	.42½@	.43
Carded, American, 17¼ oz. 10-ply	lb.	.35 @	.35½

Sheetings

The sheetings market has been practically stationary during the fortnight, fluctuations in either direction being only fractional. Latest prices were as follows:

40-inch, 2.50-yard	yd.	.10¼@	.10½
40-inch, 2.85-yard	yd.	.09¼@	.09¼
40-inch, 3.15-yard	yd.	.09⅞@	.10
40-inch, 3.60-yard	yd.	— @	.08⅝
40-inch, 3.75-yard	yd.	.07¼@	.07⅜
40-inch, 4.25-yard	yd.	.06¼@	.06⅜

Ducks

Prices for cotton ducks have undergone no change during the past fortnight, and the market has not been active. The latest quotations remain as follows:

Belting and Hose	lb.	.34½@	.35
Enameling	lb.	.32 @	.32½
Single filling	lb.	.14 @	.14½
Double filling	lb.	— @	.16

CHEMICALS

SUPPLIERS of rubber chemicals and compounding ingredients look forward to an improved demand for their products in the approaching warmer months. The tire industry is operating on more active schedules than at any time since last August, and it is felt that a record retail demand will be experienced during the coming month or two. Meanwhile, the mergers among chemical firms already announced are proceeding to consummation, and reports are still heard regarding new consolidations. The *Wall Street Journal* states that representatives of the two largest producers of carbon black recently held a meeting at which tentative plans to curtail production were drawn up. This movement may improve earnings conditions in that field in coming months.

ACCELERATORS

Organic				
A-1	lb.	.24	@	.27
A-5-10	lb.	.33	@	.36
A-7	lb.	.55	@	.59
A-11	lb.	.62	@	.66
A-16	lb.	.57	@	.61
A-19	lb.	.58	@	.62
A-20	lb.	.64	@	.68
A-32	lb.	.90	@	.95
Aldehyde ammonia, crystals	lb.	.65	@	.70
Aniline oil, drums, f.o.b. works	lb.	.15	@	.16
Captax	lb.			
Crylene	lb.	.55	@	.65
paste	lb.	.45	@	.55
Di-Ortho-Tolyguanidine	lb.	.42	@	.44½
Diphenylguanidine	lb.	.30	@	.32½
Dipsol	lb.	4.30	@	4.50
Ethylidene aniline	lb.	.45	@	.47½
Formaldehyde aniline	lb.	.40	@	.42½
Heptene	lb.	.40	@	—
Hexamethylene-tetramine	lb.	.58½	@	.61
Lithex	lb.	.18	@	.20
Methylenedianiline	lb.	.37½	@	.40
Monex	lb.	3.25	@	—
Oxynone	lb.	.68	@	.80
Phenex	lb.	.75	@	—
R & H 40	lb.	.40	@	.42½
R & H 50	lb.	.40	@	.42½
R & H 397	lb.	.75	@	.77½
R-2	lb.	1.95	@	2.15
Safex	lb.	1.20	@	1.25
SPDX	lb.	.75	@	—
Super-Sulphur No. 1	lb.			
No. 2	lb.			
Tensilac, No. 39	lb.	.40	@	.42½
Tensilac, No. 41	lb.	.50	@	.52½
Thermlo F	lb.	.50	@	.55
Thiocarbanilid, drums	lb.	.25½	@	.28½
Trimene	lb.	.75	@	—
base	lb.	1.20	@	—
Triphenylguanidine	lb.	.58	@	.62½
Tuads	lb.			
Ureka	lb.	.75	@	1.00
Vulcanex	lb.			
Vulcone	lb.			
Vulcanol	lb.			
Z 88	lb.	.50	@	.60
Zimate	lb.			
Inorganic				
Lead, sublimed blue	lb.	.08¼	@	—
Lead, white	lb.	.08½	@	.08¾
Litharge, domestic	lb.	.09¼	@	.11
Magnesia, calcined, light	per 100 lb.	5.35	@	5.45
heavy	per 100 lb.	3.65	@	3.75

COLORS

Blacks (See Compounding Materials)

Blues				
Prussian	lb.	.35	@	.36
Ultramarine	lb.	.06	@	.32
Browns				
Sienna, Italian	lb.	.05½	@	.12½
Umber, Turkey	lb.	.04½	@	.07
Greens				
Chrome, light	lb.	.30	@	.32
medium	lb.	.31	@	.33
dark	lb.	.34	@	.36
Chromium Oxide, bbl.	lb.	.34½	@	.35½
Reds				
Antimony crimson, 15/17	lb.	.40	@	.44
sulfur, free	lb.	.56	@	.66
golden 15/17 F.S.	lb.	.20	@	.25
Indian English	lb.	.08	@	.11
Domestic (Maroon)	lb.	.11	@	—
Oximony	lb.	.13¼	@	—
Red oxide, pure	lb.	.10	@	.12
Venetian red	lb.	.03	@	.06
Vermillion, quicksilver, English	lb.	2.00	@	2.05
Whites				
Lithopone, Akcolith	lb.	.05 3/5	@	.06
Lithopone, Albalith	lb.	.05¼	@	.05¾
Lithopone, Azolith	lb.	.05¼	@	.05¾
Lithopone, Vanolith	lb.	.05¾	@	—
Titanox B, f.o.b. St. Louis,	lb.	.07¼	@	.07¾
Titanox C, f.o.b. St. Louis,	lb.	.07¾	@	.08¼
Zinc Oxide—American Process				
American Azo:				
ZZZ (lead free)	lb.	.06½	@	.07
ZZ (leaded)	lb.	.06⅝	@	.06⅞
Horsehead Brand:				
Special	lb.	.07	@	.07½
XX Green	lb.	.07	@	.07½
XX Red, lead free	lb.	.06½	@	.07
Kadox, black label	lb.	.10⅝	@	.10⅞
blue label	lb.	.09⅝	@	.09⅞
red label	lb.	.08	@	.08½
Zinc Oxide—French Process				
White seal	lb.	.11⅝	@	.11⅞
Green seal	lb.	.10⅝	@	.10⅞
Red seal	lb.	.09⅝	@	.09⅞
Yellows				
Chrome	lb.	.17	@	.17½
Ocher, French medium	lb.	.02	@	.03
domestic	lb.	.01½	@	.02

COMPOUNDING MATERIALS

Aluminum Flake	ton	21.85	@	24.50
Ammonia carbonate, lump	lb.	.07½	@	.07¾
Asbestine	ton	14.75	@	18.00
Barium carbonate	lb.	.03½	@	.05
Barium Dust	lb.	.05	@	.06
Barytes southern off-color	ton	12.00	@	18.00
Western prime white	ton	23.00	@	—
imported	ton	27.00	@	36.00
Basofor	lb.	.04½	@	—
Blacks				
Arrow "Aerfloted"	lb.	.05½	@	.11
Bone Black	lb.	.07	@	.08½
Carbon, compressed	lb.	.05	@	.10
Carbon, uncompressed	lb.	.05	@	.10
Disperso, f.o.b. Louisiana	lb.	.051	@	—
Disperso, f.o.b. Texas	lb.	.05	@	—
Drop Black	lb.	.06	@	.14
Fumonex	lb.	.04½	@	.08
Excello, compressed	lb.	.05	@	.09
Gastex, f.o.b. Texas	lb.	.04¼	@	.05½
Lamp Black	lb.	.10	@	.40
Micronex	lb.	.05½	@	.11
Thermatomic-Thermax	lb.			
Flex	lb.			
P-33	lb.			
United carbon, fob Tex.	lb.	.05½	@	.11
Velvetex carbon	lb.	.04	@	.06
Blanc fixe dry f.o.b. works	ton	75.00	@	90.00
Carrara filler	lb.	.01¾	@	.02
Catalpo (fact.)	lb.	.02	@	—
Clay, China, domestic	ton	8.00	@	9.00
Aerfloted Suprex	ton	10.00	@	22.00
Congaree, c. l. f.o.b. mine	ton	9.00	@	—
Dark Blue Ridge	ton			
Dixie	ton			
Langford	ton			
Lexington	ton	10.00	@	22.00
Mineral Flour, c. l. fob mine	ton	20.00	@	23.00
Par	ton			
Tensulite		15.00	@	—
Glues, extra white	lb.	.22	@	.26
medium white	lb.	.20	@	.24
Magnesia, carbonate	lb.	.08¾	@	.11
Mica, white water grnd.	lb.	.06	@	.08
Off color (biotite)	lb.	.05	@	.07
Rotten Stone powdered)	lb.	.02	@	.05
Soapstone, powdered	ton	15.00	@	22.00
Starch, powdered	cwt.	3.72	@	4.02
Talc, domestic	ton	12.00	@	15.00
Pyrax A	ton			
Whiting, commercial	cwt.	—	@	1.00
English cliffstone	cwt.	1.75	@	2.00
Quaker	ton			
Superfine	ton	10.00	@	12.00
Sussex	ton			
Witco	ton	20.00	@	—
Zinc Carbonate	lb.	.09½	@	.10½
Zinc Stearate	lb.	.23½	@	.25

MINERAL RUBBER

Genasco (factory)	ton	50.00	@	52.00
Granulated M. R.	ton			
Hard Hydrocarbon	ton			
Paradura	ton	62.50	@	65.00
Pioneer, MR, solid	ton	40.00	@	42.00
Pioneer-granulated	ton	50.00	@	52.00
R & H Hydro-Carbon	ton	27.05	@	29.00
Robertson, MR, solid	ton	34.00	@	80.00
M.R. (gran)	ton	38.00	@	80.00

SOFTENERS

Acids				
Nitric, 36 degrees	cwt.	5.00	@	5.25
Sulfuric, 66°	cwt.	1.60	@	1.95
Tartaric, crystals	lb.	.38	@	.38½
Acids, Fatty				
Laurex	lb.	.15	@	.16
Stearex	lb.	.18	@	.19
Stearic, double pressed	lb.	.17	@	.21
Alkalies				
Caustic soda, 76%	cwt.	3.76	@	3.91
Soda ash, 58% C.L.	cwt.	1.40	@	
Oils				
Corn, refined, bbls.	lb.	.09	@	.10¼
Cottonseed, crude		—	@	.07½
Cycline	gal.	.27	@	.34
Degras (c.l. 100 bbls.)	lb.	.03¾	@	—
Less c. l. (10-25 bbls.)	lb.	.04	@	—
Lots less than 10 bbls.	lb.	.04½	@	.04½
Fluxrite	lb.	.05½	@	.06½
Palm Lagos	lb.	.07¾	@	.07½
Niger	lb.	.06⅞	@	.07
Para-Flux	gal.	.17	@	—
Petrolatum, white	lb.	.08	@	.08½
Pigmentaroil	gal.	.21	@	.24
Pine, steam distilled	gal.	.65	@	.70
destructively distilled	gal.	.55	@	.58
Witco Palm Oil	lb.	.11	@	—
Witco Softener (f.o.b. wks.)	lb.	.02	@	—
Resins and Pitches				
Pitch, Burgundy	lb.	.06½	@	.07½
coal tar	gal.	.05½	@	.06
pine, 200 lb. gr. wt.	bbl.	9.00	@	10.00
Rosin, grade K, 280 lb.	bbl.	—	@	8.65
Pigmentar	lb.	.038	@	.0446
Tar Retort, 50 gal.	bbl.	13.50	@	15.00
Solvents				
Acetone, pure	lb.	.11	@	.12
Alcohol denatured, No. 1 bbls.	gal.	.51	@	—
Benzol, 90%	gal.	.22	@	.24
Carbon bisulphide	lb.	.05½	@	.06¼
Carbon tetrachloride	lb.	.06¼	@	.07
Dryolene (f.o.b. Okla.)	gal.	.10	@	.10½
Gasoline, steel bbls.	gal.	.16	@	—
Naptha, solvent	gal.	.35	@	.40
Rub-Sol (f.o.b .Okla.)	gal.	.09	@	—
Turpentine, spirits	gal.	.55	@	.61¼
wood	gal.	—	@	.51
destructively distilled	gal.	.40	@	.43
Waxes				
Beeswax, white	lb.	.51	@	.53
Carnauba	lb.	—	@	.35
Ceresin, white	lb.	.10	@	.11
Montan, crude	lb.	.06½	@	.07
Ozokerite, black	lb.	.24	@	.25
green	lb.	.26	@	.30
Paraffin (c. l.—f.o.b. N. Y.)				
Yellow crude scale	lb.	.03½	@	—
White crude scale 124/126	lb.	.03½	@	—
Refined, 125/127	lb.	.04¼	@	—
Refined, 128/130	lb.	.04½	@	—
Refined, 135/137	lb.	.05¾	@	—
Refined, 138/140	lb.	.07¾	@	—

ANTI-OXIDANTS

Agerite, Resin	lb.			
Powder	lb.			
White	lb.			
Albasan	lb.	.70	@	.75
Antox	lb.			
B-L-E	lb.	.57	@	.60
Neozone	lb.			
Oxynone	lb.	.68	@	.80
Resistox	lb.	.54	@	.57
Stabilite	lb.	.57	@	.62
Stabilite Alba	lb.	.70	@	.75
VGB	lb.	.55	@	.66

SPECIALTIES

Sunproof	lb.	.35	@	.37½
Tonox	lb.	.56	@	.60

SUBSTITUTES

Black	lb.	.08	@	.14
White	lb.	.10	@	.16
Brown	lb.	.08	@	.15

VULCANIZING INGREDIENTS

Sulfur Chloride (drums)	lb.	.03½	@	.04½
Sulfur flour, Ref'n'd, 100% pure (bags)	cwt.	2.40	@	2.75
Commercial (bags)	cwt.	1.75	@	2.10
Vandex	lb.			

TIRES & TUBES
CRUDE RUBBER

STATISTICAL SECTION

AUTOMOBILES
GASOLINE

REVISIONS in the statistics compiled by the Rubber Manufacturers Association, Inc., now show that crude rubber stocks on hand in this country on February 28 were 143,863 long tons, instead of 131,748 long tons, as previously figured. Stocks on hand as of March 31 jumped to 156,516 long tons, according to the association. This represents the highest figure ever attained by domestic inventories of the commodity, but even this high total will probably be increased to a point above 160,000 long tons by April 30.

United Kingdom stocks are also climbing relentlessly and have gained in the first two weeks of April almost as much as during the entire month of March. Combined London and Liverpool stocks on April 12 amounted to 95,009 long tons, as compared with 90,431 long tons on March 29.

The coming warmer months are expected to bring the rubber industry back to a production basis more nearly approaching the high levels of last year in this country. According to the Department of Commerce, the rate of employment in the domestic industry in February was only 88 per cent of the 1923-25 monthly average, as against 90 per cent in January and 112 per cent in February, 1929. This is expected to show a sharp increase in the current spring months.

Latest figures covering imports and exports from the leading producing and consuming countries have been added to the appropriate tables in this section.

PLAN OF THE SECTION

The statistics included in this section have been chosen for their constant importance to the rubber industry. The tables are reprinted in the same relative position in every issue, each table being kept current by the addition of new figures as soon as they become available.

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U. S. Imports and Exports of Crude Rubber

YEARS	Gross Imports: Long Tons	Total Declared Value	Average Declared Value per pound Cents	Re-exports: Long Tons	Total Declared Value	Average Declared Value per pound Cents	Net Imports: Long Tons
1921	185,394	73,772,677	17.76	5,716	2,414,924	16.86	179,678
1922	301,076	101,843,188	15.10	4,809	1,921,828	17.84	296,267
1923	309,144	185,060,304	26.72	8,772	5,672,319	28.87	300,372
1924	328,056	174,281,331	23.71	10,309	6,057,637	26.23	317,747
1925	396,642	429,705,014	48.36	14,827	19,347,753	59.76	381,815
1926	413,338	505,817,807	54.63	17,671	22,470,583	56.77	395,667
1927	426,258	339,874,774	35.60	27,775	24,795,488	39.76	398,483
1928	439,731	244,854,973	25.03	32,159	18,123,361	25.17	407,572
1929	560,084	239,178,783	19.15	36,485	16,868,733	20.64	523,599
1927:							
July	37,677	21,673,259	37.53	1,958	1,569,853	35.59	35,719
Aug.	32,810	26,396,931	75.92	1,809	1,382,768	34.12	31,001
Sept.	33,301	25,314,412	33.94	3,500	3,036,929	38.74	29,801
Oct.	30,134	22,163,282	32.78	2,513	2,042,713	36.29	27,671
Nov.	28,592	27,395,428	31.69	2,469	2,014,196	36.43	26,123
Dec.	30,737	22,213,574	32.26	2,655	2,245,754	37.77	28,082
1928:							
Jan.	39,107	30,273,444	34.56	1,988	1,734,990	38.95	37,119
Feb.	33,663	27,763,655	36.82	2,738	2,229,589	36.35	30,925
Mar.	40,611	32,103,042	35.29	3,718	2,587,435	31.07	36,893
Apr.	37,935	27,287,266	32.11	2,272	1,415,024	27.80	35,663
May	31,059	19,058,672	27.39	2,399	1,336,307	25.80	28,660
June	27,765	14,121,219	22.71	2,621	1,400,697	23.36	25,144
July	31,258	14,144,765	20.20	3,087	1,451,446	20.99	28,171
Aug.	31,204	12,860,150	18.39	2,377	1,084,646	20.37	28,827
Sept.	39,235	16,512,019	18.50	3,038	1,284,148	20.34	36,797
Oct.	44,658	18,200,332	18.44	2,405	1,085,407	20.15	41,653
Nov.	36,519	14,878,441	18.19	2,788	1,207,089	18.52	33,731
Dec.	43,511	17,580,966	18.04	2,738	1,165,748	19.00	40,773
1929:							
Jan.	57,564	22,872,943	17.74	3,663	1,773,401	21.61	53,901
Feb.	64,265	24,760,111	17.20	2,955	1,374,783	20.77	61,310
Mar.	50,604	20,380,905	17.98	4,218	2,094,087	22.16	46,386
Apr.	55,725	25,542,726	20.46	3,293	1,624,237	22.02	52,432
May	51,161	24,355,511	21.25	2,336	1,349,690	21.24	48,825
June	41,663	18,799,307	20.14	3,152	1,470,746	20.83	38,511
July	43,944	19,342,147	19.65	3,424	1,590,411	20.73	40,520
Aug.	37,222	16,530,090	19.83	2,644	1,232,217	20.80	34,578
Sept.	34,472	15,214,485	19.70	2,011	861,068	19.11	32,461
Oct.	38,163	16,192,261	18.94	2,614	1,190,510	20.33	35,549
Nov.	43,597	18,189,305	18.66	2,929	1,300,354	19.82	40,578
Dec.	42,952	17,573,330	18.27	2,745	1,007,279	16.38	40,207
1930:							
Jan.	47,496	17,793,563	16.72	3,144	1,077,415	15.30	44,352
Feb.	42,687	14,798,240	15.48	2,280	960,790	18.80	40,407
Mar.							
Apr.							
May							
June							

U. S. Consumption of Crude Rubber

(Rubber Manufacturers' Association statistics raised to 100 per cent—All figures in long tons)

Figures on Monthly Basis

	1923	1924	1925	1926	1927	1928	1929	1930
Jan.	30,106	29,058	29,638	32,196	31,518	34,403	43,002	36,669
Feb.	30,149	25,736	29,761	31,136	30,137	33,702	41,594	32,726
Mar.	36,629	28,385	33,498	32,936	36,141	35,688	44,730	35,914
Apr.	29,085	27,129	34,139	32,696	35,871	32,772	47,521	
May	36,155	25,845	35,322	29,364	34,592	37,333	49,233	
June	24,272	22,753	35,822	28,598	33,801	37,676	43,227	
July	17,685	23,396	36,053	27,577	29,219	37,407	41,526	
Aug.	20,359	28,982	35,909	34,533	33,460	42,927	38,274	
Sept.	17,594	31,497	31,691	32,904	27,214	39,882	34,707	
Oct.	21,321	31,520	29,047	29,836	26,790	40,857	34,800	
Nov.	20,437	27,289	28,853	28,080	26,792	37,461	27,659	
Dec.	31,902	27,199	28,748	26,293	25,492	31,232	23,531	
Totals	305,694	328,769	388,481	366,149	371,027	441,340	469,804	

Figures on Quarterly Basis

Quarter	1922	1923	1924	1925	1926	1927	1928	1929
Jan./Mar.		96,776	87,609	95,263	94,301	99,216	103,558	128,565
Apr./June	127,360	89,493	75,674	104,099	87,109	103,242	103,500	139,293
July/Sept.		55,621	83,813	99,493	93,793	89,210	117,573	113,746
Oct./Dec.	155,067	63,617	92,656	85,789	83,212	80,860	117,597	84,872
Totals	282,427	305,507	339,752	384,644	358,415	372,528	442,227	466,475

Note—The Rubber Association estimates its monthly rubber consumption figures to be 90 per cent complete. Up until 1925 the quarterly figures were likewise estimated to be 90 per cent complete; beginning with 1925 an estimate of 92 per cent completeness has been used. These estimates have been used in raising the figures in this table to 100 per cent. The quarterly figures are generally regarded as the most authentic; the monthly figures may be accepted as preliminary.

Rubber Invoiced to the U. S.

(Reported by American Consuls—Quantities in Long Tons)

During the Week Ended	From Br. Malaya	From Ceylon	From Dutch East Indies	From London & Liverpool	Total
Jan. 18	7,009	898	1,560	49	9,516
Jan. 25	9,212	1,103	2,051	14	12,380
Feb. 1	5,078	1,213	1,679	93	8,063
Feb. 8	9,902	1,788	2,572	31	14,293
Feb. 15	7,223	1,312	1,315	59	9,909
Feb. 22	7,010	1,223	2,389	51	10,673
Mar. 1	8,146	2,315	2,898	57	13,416
Mar. 8	6,637	925	1,990	45	9,597
Mar. 15	6,256	658	1,786	10	8,710
Mar. 22	7,075	753	1,997	19	9,844
Mar. 29	5,867	1,335	1,462	—	8,664
Apr. 5	7,435	779	2,109	—	10,323
Apr. 12	7,026	1,235	1,527	7	9,795

Daily Spot Closing Prices of Ribbed Smoked Sheet Rubber—New York Market, in Cents per Pound

Daily Spot Closing Prices of Ribbed Smoked Sheet Rubber—*New York Market, in Cents per Pound*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Ave.
1928																																
January	—	—	41¼	41¾	41¾	41¾	41	—	40⅝	40½	40¼	40⅜	40½	40¾	40¾	—	40¾	40⅜	40⅛	40¼	40¾	—	—	40¼	40¾	40¾	39¾	39¼	39	—	38⅝	40⅛
February	87½	87⅜	87⅜	87⅜	—	86⅜	87	86⅜	84½	83⅞	83⅞	—	84¼	84⅛	84⅛	82½	81¼	81¼	80⅞	80⅜	80⅜	—	—	29	28½	28½	29	28⅝	—	—	—	82⅜
March	29	28⅜	28⅞	—	29	28⅝	26¾	25½	26¼	26¼	25¾	—	24¼	25½	25	26	25¼	25¼	28⅜	26¾	26	26¼	27¼	27¼	26½	26⅜	27¼	27¼	27⅜	27⅜	27⅜	26¾
April	—	27¼	27½	27½	21¼	21¼	—	—	20	18⅝	18⅝	18½	18⅝	18⅝	—	17½	17¼	17¼	17⅝	17⅝	—	—	—	17	17	17⅝	17⅝	17⅝	17⅝	17⅝	—	19
May	17½	17¾	18¼	19¼	19¼	19¼	18⅝	19¼	18⅝	18⅝	18⅞	18⅞	18⅞	19	—	19	19	18⅝	18⅝	—	18⅝	18¾	19	19	19¾	20¼	20¼	20¼	20	19	19½
June	19¾	19¾	—	19¾	19¾	19¾	—	—	19¾	19¾	19¾	19¾	19½	19½	—	19½	—	19¾	19¾	19¾	19¾	19¾	19½	19¾	19¾	19¾	19¾	19¾	19¼	19¼	19¼	19½
July	—	18⅞	18⅞	—	19¾	—	19	19	19¾	—	19¾	19¾	19½	19½	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19	19	19	19	19½
August	19½	19½	19¾	19¾	—	19¾	19¾	20	20	—	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19	19	19	19	19	19	19	19	19	19	18½
September	—	—	—	19¾	18¾	18¾	18¾	18¾	18¾	17¾	18¼	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19½	19¾	19¾	18	18	18¾	18¾	18½	18½	18½	18½	18½	18¾	18½
October	—	18¾	18½	18¾	18¾	18¾	18¾	18¾	18¾	18¾	19	18¾	18¾	18¾	—	18¾	18	17½	19	19	19	19	19	18¾	18¾	18¾	18½	18½	18½	18½	18¾	18¾
November	—	18¾	18¾	18¾	18¾	18¾	18⅞	—	18⅞	18⅞	18⅞	18⅞	18¾	18	18	17½	17⅝	18	18¾	18¾	18¼	18¼	—	18¾	18¾	17⅝	17⅝	17⅝	17⅝	17⅝	18⅛	18¼
December	—	17¾	17¾	17¾	17¾	17¾	18¼	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	—	—	—	17⅝	17⅝	17⅝	18⅛	18⅛	18⅛	18
1929																																
January	—	18¼	18¼	18¼	18¼	18¼	18¼	18⅜	18½	18⅝	20	20	22⅜	23	23	20	20¼	20¼	20¼	20¼	20⅝	20¼	21¾	21¾	21¾	22	22¼	21¾	21¾	21¾	22¼	20⅝
February	22⅝	22	—	21⅞	21⅞	22¼	22¼	22¾	22¾	22¾	—	25⅝	25¼	24⅝	24⅝	24⅝	25⅝	25¼	24¾	25¼	24¼	—	—	—	—	23½	24	24	24½	24½	—	24
March	26	26	—	26	26	26	25⅝	25½	25½	—	22½	21⅞	21¾	21¾	22¼	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾
April	23	23¼	22¾	22¾	22½	22½	—	22¾	22½	22½	22¾	22¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾
May	19⅝	19⅝	19⅝	19⅝	19⅝	20¾	20¾	21¾	21	21	21	20½	20½	20½	20½	20½	20½	20½	20½	20½	20½	20½	20½	20½	20½	20½	20½	20½	20½	20½	20½	20½
June	21¾	—	21¾	21¾	—	21¾	21¾	21¾	—	20⅝	22	—	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾
July	20¾	21¼	21¼	—	21¼	21¼	21¼	21¼	21¼	21⅝	20⅝	20¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾	20¾
Aug.	21⅜	21	21	—	21	21	21	21	—	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝
Sept.	—	—	—	19¾	20¼	20¼	20¼	21	21	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝
Oct.	19⅞	19½	19½	19⅝	19⅝	19⅝	20¼	20¼	20¼	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝
Nov.	17¾	17⅞	17½	17½	17½	17½	17⅝	17⅝	17⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝
Dec.	—	16¼	—	16¼	16¼	16¼	16¼	16¼	—	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝
1930																																
January	—	15⅞	—	15⅝	15⅝	—	15⅝	15⅝	15	14⅞	15	15	14⅞	15	15	15	15	15	14⅞	14⅞	14⅞	14⅞	15	15	15	15	15	15	15	15	15	15
February	15¼	—	15	15	15	15¼	15⅝	15⅝	15½	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝
March	15⅜	15⅝	15⅝	15⅝	15⅝	15	15⅜	15⅜	15⅜	15⅜	15⅜	15⅜	15⅜	15⅜	15⅜	15⅜	15⅜	15⅜	15⅜	15⅜	15⅜	15⅜	15⅜	15⅜	15⅜	15⅜	15⅜	15⅜	15⅜	15⅜	15⅜	15⅜
April	15½	—	15½	15½	15¼	15¼	—	16¼	16¼	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝

Average Spot Closing Prices—Ribbed Smoked Sheets

(New York Market)

Average Price per Pound for Years 1910-1921

Year	Cents	Year	Cents	Year	Cents
1910	206.60	1914	65.33	1918	60.15
1911	141.30	1915	65.85	1919	48.70
1912	121.60	1916	72.50	1920	36.30
1913	82.04	1917	72.23	1921	16.36

Average Monthly Price per Pound Since 1922

Months	1922 Cents	1923 Cents	1924 Cents	1925 Cents	1926 Cents	1927 Cents	1928 Cents	1929 Cents	1930 Cents
Jan.	18.82	32.73	25.86	36.71	79.50	38.75	40.25	20.14	15.24
Feb.	16.12	35.14	25.29	36.01	62.25	38.25	32.75	23.97	15.85
Mar.	14.53	34.21	22.83	41.00	59.00	41.04	26.82	24.55	15.34
Apr.	15.99	32.48	22.51	43.64	51.25	40.86	18.97	21.18	——
May	15.25	27.39	18.89	58.47	47.75	40.76	18.99	21.46	——
June	15.11	26.88	18.81	77.26	42.50	37.25	19.59	20.64	——
July	14.67	26.10	22.16	103.16	41.03	34.87	19.40	21.30	——
Aug.	13.93	28.84	26.17	82.99	38.50	35.12	19.46	20.59	——
Sept.	14.44	28.95	27.56	88.88	41.00	33.67	18.47	20.37	——
Oct.	19.78	26.93	31.13	98.01	42.50	34.32	18.83	19.67	——
Nov.	23.88	27.14	34.33	104.80	38.50	37.58	18.26	16.62	——
Dec.	27.42	26.60	37.88	98.51	38.25	40.63	17.97	16.12	——
Average for Year	17.50	29.45	26.20	72.46	48.50	37.72	22.48	20.55	——

London Closing Prices of Ribbed Smoked Sheet

(In Pence Per Pound)

Day	Jan.	Feb.	Mar.	Apr.	Day	Jan.	Feb.	Mar.	Apr.
1	—	7⅝	7⅞	7⅝	17	7⅝	8	7½	7½
2	7⅞	—	—	7⅝	18	7¾	8⅛	7½	—
3	7¾	7½	7⅞	7⅝	19	—	8¼	7½	—
4	7¾	7½	7¾	7½	20	7⅜	8¼	7⅝	—
5	—	7½	7⅜	7½	21	7⅜	8¼	7⅝	—
6	7¾	7⅝	7½	—	22	7⅜	8⅜	7⅝	—
7	7⅝	7¾	7½	7½	23	7¾	—	—	—
8	7⅜	7⅞	7⅝	7½	24	7½	8⅛	7⅝	—
9	7⅜	—	—	7½	25	7½	8⅛	7¾	—
10	7¼	7⅞	7⅝	7½	26	—	8⅛	7⅝	—
11	7	7⅞	7½	7½	27	7½	7⅞	7⅝	—
12	—	8	7½	7½	28	7½	7⅞	7¾	—
13	7¼	8	7½	—	29	7½	—	7¾	—
14	7¼	8	7¼	7½	30	7½	—	—	—
15	7¼	8	7⅜	7½	31	7½	—	7⅝	—
16	7½	—	—	7½					

Average Monthly Price Per Pound

Month	1928 Pence	1929 Pence	1930 Pence	Month	1928 Pence	1929 Pence	1930 Pence
Jan.	19.310	9.942	7.471	Aug.	9.300	10.505	——
Feb.	15.713	11.875	7.948	Sept.	8.530	10.160	——
Mar.	12.736	12.135	7.595	Oct.	8.807	9.620	——
Apr.	8.864	10.490	——	Nov.	8.596	8.442	——
May	8.845	10.717	——	Dec.	8.570	7.958	——
June	9.293	10.580	——	Average for Year	10.656	10.291	——
July	9.312	11.065	——				

Spot Closing Cotton Prices

(Middling Upland Grade—New York Market)

Recent Daily Price Per Pound

Day of Month	Mar.	Apr.	Day of Month	Mar.	Apr.	Day of Month	Mar.	Apr.
1	15.10	16.65	11	14.30	16.55	21	15.85	——
2	——	16.55	12	14.55	16.55	22	15.95	——
3	15.00	16.80	13	14.50	——	23	——	——
4	14.90	16.60	14	14.70	16.35	24	15.70	——
5	14.60	16.70	15	14.85	16.00	25	15.80	——
6	14.50	——	16	——	16.30	26	16.00	——
7	14.15	16.75	17	15.05	16.20	27	16.00	——
8	14.05	16.55	18	15.55	——	28	16.00	——
9	——	16.60	19	15.45	——	29	15.30	——
10	14.00	16.65	20	15.50	——	30	——	——
						31	16.10	——

Average Monthly Price Per Pound

Month	1928 Cents	1929 Cents	1930 Cents	Month	1928 Cents	1929 Cents	1930 Cents
Jan.	19.12	20.22	17.21	Aug.	19.28	18.62	——
Feb.	18.40	20.21	15.62	Sept.	18.67	18.83	——
Mar.	19.38	20.19	15.13	Oct.	19.62	18.46	——
Apr.	20.63	20.29	——	Nov.	19.84	17.53	——
May	21.58	19.41	——	Dec.	20.22	17.28	——
June	21.50	18.74	——	Average for Year	19.97	19.03	——
July	21.36	18.62	——				

Stock of Crude Rubber in the U. S.

(All Quantities in Long Tons)

At	ON HAND			AFLOAT			ON HAND AND AFLOAT		
End of	1928	1929	1930	1928	1929	1930	1928	1929	1930
Jan.	110,244	76,342	120,649	41,256	78,596	61,863	151,500	154,938	182,512
Feb.	108,955	90,058	143,863	43,316	63,825	63,404	152,271	153,883	207,267
March	114,061	100,536	156,516	39,324	56,476	63,646	153,385	157,012	220,162
April	113,083	107,659		33,986	55,409		147,069	163,068	
May	105,356	97,192		34,374	55,404		139,730	152,596	
June	90,193	92,061		40,001	46,035		130,119	138,096	
July	83,242	92,535		42,304	33,858		125,546	134,393	
Aug.	68,994	90,769		51,875	41,618		120,869	132,387	
Sept.	68,851	84,362		48,566	49,480		117,417	133,842	
Oct.	66,421	88,483		41,571	62,294		107,992	150,777	
Nov.	61,956	92,219		68,119	62,358		130,075	154,577	
Dec.	66,166	105,138		68,764	62,389		134,930	167,527	

(Rubber Manufacturers' Association figures raised to 100%.)

Stock of Crude Rubber in London

(No. of Tons in Wharves and Warehouses, including Latex)

At end of	1927	1928	1929	At end of	1927	1928	1929
Jan.	54,994	66,524	25,191	July	63,717	35,429	30,080
Feb.	58,826	62,964	25,554	Aug.	64,491	32,084	35,605
Mar.	63,055	58,272	28,214	Sept.	68,236	31,440	42,188
Apr.	66,897	53,425	31,368	Oct.	69,569	24,207	47,803
May	67,169	44,628	31,290	Nov.	67,050	17,775	52,454
June	63,902	38,756	31,025	Dec.	63,793	19,815	54,304

At End of Recent Weeks

Stocks in London

	First Saturday	Second Saturday	Third Saturday	Fourth Saturday	Fifth Saturday
1929					
June	31,539	31,635	31,127	30,617	30,982
July	29,996	30,661	30,790	30,167	
August	30,937	31,444	33,573	34,651	35,605
September	36,620	37,901	40,151	42,077	
October	43,478	44,339	45,711	46,819	
November	48,092	49,302	50,068	51,012	52,538
December	53,431	53,180	53,894	54,260	
1930					
January	56,616	58,990	59,607	59,984	
February	60,460	61,482	62,659	62,725	
March	64,383	66,418	66,885	68,404	69,233
April	71,477	72,333			

Stocks in Liverpool

1929					
June	4,642	4,750	4,733	4,515	4,628
July	4,393	4,547	4,757	4,739	
August	4,662	4,481	5,993	7,285	7,560
September	8,351	8,660	9,780	10,161	
October	10,795	11,571	11,788	12,655	
November	14,272	16,158	17,548	17,479	17,752
December	17,922	18,263	18,696	19,059	
1930					
January	19,433	19,640	19,515	20,063	
February	19,898	19,761	19,677	19,704	
March	20,693	20,727	20,849	21,187	21,198
April	22,008	22,676			

Rubber in Singapore and Penang

(Stocks held by Dealers—Quantities in Long Tons)

End of	1928	1929	1930	End of	1928	1929	1930
Jan.	25,868	29,617	37,123	July	18,663	33,359	—
Feb.	22,867	32,373	40,293	Aug.	18,971	30,834	—
Mar.	20,538	29,437	—	Sept.	14,898	32,138	—
Apr.	16,946	26,474	—	Oct.	12,149	33,770	—
May	17,437	30,764	—	Nov.	29,188	30,963	—
June	18,207	30,403	—	Dec.	32,895	35,548	—

Rims Inspected and Passed in U. S.

(Tire and Rim Association Reports)

	Total	Per Cent Balloons		Total	Per Cent Balloons
1922	16,297,735	0.0	1926	24,199,524	78.8
1923	23,140,620	0.6	1927	19,700,003	79.1
1924	21,868,311	19.7	1928	24,247,282	81.6
1925	26,001,664	66.9	1929	24,141,502	80.3
1929			1930		
July	1,896,666	78.2	January	1,601,326	84.0
August	1,570,099	79.4	February	1,653,421	78.9
September	2,110,003	80.7	March	2,061,999	79.1
October	1,647,350	76.4	April		
November	596,989	64.7	May		
December	879,259	79.0	June		

U. S. Consumption of Gasoline

(In Barrels of 42 Gallons)

MONTHS	1929	1930	MONTHS	1929	1930
January	22,602,000	25,731,000	July	36,860,000	
February	22,776,000	26,509,000	August	37,759,000	
March	26,495,000		September	34,193,000	
April	32,019,000		October	32,816,000	
May	34,117,000		November	31,502,000	
June	33,163,000		December	26,550,000	

U. S. Tire and Tube Statistics

(All Figures Represent Thousands)

AUTOMOBILE CASINGS

Figures for Recent Years

	1922	1923	1924	1925	1926	1927	1928	1929
Production	40,932	45,259	51,633	60,845	61,237	64,439	77,944	78,308
Shipments	39,987	45,204	50,120	59,262	59,002	64,059	74,296	74,021
Inventory[2]	6,132	5,772	7,427	8,142	10,456	10,264	13,624	12,627

Figures for Recent Months

	PRODUCTION			SHIPMENTS			INVENTORY		
	1928	1929	1930	1928	1929	1930	1928	1929	1930
Jan.	5,358	6,722	4,745	5,394	6,626	4,701	9,949	13,712	12,719
Feb.	6,363	6,912	4,859	5,031	5,282	4,474	11,721	15,495	13,238
Mar.	6,819	7,519	—	5,731	6,708	—	12,389	16,351	—
Apr.	6,178	7,884	—	5,812	7,294	—	12,717	16,929	—
May	6,759	8,145	—	6,457	7,184	—	13,024	17,849	—
June	6,692	7,304	—	7,117	7,254	—	12,162	17,957	—
July	6,498	6,475	—	7,895	7,855	—	11,157	15,830	—
Aug.	7,469	5,806	—	8,403	7,845	—	10,034	14,226	—
Sept.	6,802	4,758	—	7,145	5,998	—	9,765	12,875	—
Oct.	7,326	4,919	—	5,717	4,960	—	11,520	12,845	—
Nov.	6,075	3,603	—	4,998	3,558	—	12,579	12,935	—
Dec.	5,605	3,261	—	4,591	3,346	—	13,624	12,627	—

AUTOMOBILE INNER TUBES

Figures for Recent Years

	1922	1923	1924	1925	1926	1927	1928	1929
Production	50,850	60,116	70,706	82,614	76,618	70,823	80,180	73,417
Shipments	49,673	59,072	68,016	81,004	71,591	72,896	77,127	75,298
Inventory[2]	7,643	8,425	11,052	11,313	16,200	13,692	16,117	13,660

Figures for Recent Months

	PRODUCTION			SHIPMENTS			INVENTORY		
	1928	1929	1930	1928	1929	1930	1928	1929	1930
Jan.	5,441	6,517	4,914	6,072	7,242	5,181	12,982	15,386	13,551
Feb.	6,895	6,769	4,948	5,431	5,278	4,627	14,650	16,999	13,905
Mar.	6,231	7,466	—	5,731	6,737	—	15,573	17,750	—
Apr.	6,661	7,634	—	5,702	7,164	—	16,638	18,134	—
May	7,168	7,660	—	6,300	7,038	—	17,702	18,928	—
June	6,953	6,978	—	7,136	6,950	—	17,159	17,741	—
July	6,674	6,178	—	8,729	8,113	—	14,974	16,332	—
Aug.	8,343	5,846	—	9,350	8,183	—	13,931	14,157	—
Sept.	7,103	5,536	—	7,154	6,250	—	13,543	13,424	—
Oct.	6,929	5,310	—	5,662	5,001	—	15,285	13,656	—
Nov.	5,592	3,780	—	5,002	3,712	—	15,743	13,701	—
Dec.	5,184	3,716	—	4,858	3,631	—	16,117	13,660	—

(1) Rubber Manufacturers' Association figures, raised to 100%. The Association estimates its figures to be 75% representative or complete when issued and that basis has been accepted when preparing the statistics in this table.

(2) Held by manufacturers at end of period indicated.

Automobile Production

	United States			Canada			
	Total	Passenger Cars	Trucks	Total	Passenger Cars	Trucks	Grand Total
1923	4,020,255	3,631,728	388,527	146,438	129,228	17,210	4,166,693
1924	3,600,918	3,203,049	397,869	185,246	117,765	17,481	3,786,164
1925	4,265,704	3,760,459	505,245	161,389	139,311	22,078	4,427,093
1926	4,298,799	3,808,753	490,046	205,092	164,483	40,609	4,503,891
1927	3,393,887	2,938,868	453,019	179,426	146,870	32,556	3,573,313
1928							
July	390,445	237,933	52,512	25,226	20,122	5,104	415,671
Aug.	458,429	400,689	57,740	31,245	24,274	6,971	489,674
Sept.	413,722	358,872	54,850	21,193	16,572	4,621	434,915
Oct.	397,096	339,976	57,120	18,536	13,016	5,520	415,632
Nov.	256,936	217,256	39,680	11,769	8,154	3,615	268,705
Dec.	233,135	205,144	27,991	9,425	6,734	2,691	242,560
TOTAL	4,357,384	3,826,613	530,771	242,382	196,737	45,645	4,599,944
1929							
Jan.	402,154	350,617	51,537	21,501	17,164	4,337	423,655
Feb.	466,084	407,589	58,495	31,287	25,584	5,703	497,371
March	584,733	513,266	69,559	40,621	32,833	7,788	625,354
April	620,656	535,679	81,977	41,901	34,392	7,509	662,557
May	603,969	516,055	86,596	31,559	25,129	6,430	635,528
June	545,252	453,956	91,296	21,492	16,511	4,981	566,744
July	500,331	427,213	73,118	17,461	13,600	3,861	517,792
Aug.	499,629	444,711	54,918	14,214	11,037	3,177	513,843
Sept.	415,332	365,651	49,681	13,817	10,710	3,107	429,149
Oct.	380,011	321,195	58,816	14,523	8,975	5,548	394,534
Nov.	217,570	170,928	46,642	9,424	7,137	2,287	226,994
Dec.	119,950	92,717	27,233	5,495	4,426	1,069	125,445
TOTAL	5,358,361	4,603,609	754,752	263,295	207,498	55,797	5,621,656
1930							
Jan.	273,089	235,099	37,990	10,388	8,856	1,532	283,477
Feb.	323,962	276,833	47,129	15,548	13,021	2,527	339,510
March	401,378	336,178	64,200	20,730	17,165	3,565	422,108
April							
May							
June							

Exports of Crude Rubber from Principal Producing Countries

(Long Tons)

	BRITISH MALAYA[1]								DUTCH EAST INDIES[2]						
	Gross Exports	Imports	Gross Exports Minus Imports	Ceylon[3]	India & Burma[3]	Sarawak[4]	British North Borneo[3]	Siam[4]	Java & Madura	Sumatra E. Coast	Other D.E.I.	Indo-China[4]	Amazon Valley	All Other[4]	World Total[7]
1923	252,016	70,432	181,584	39,971	6,416	5,705	4,237	1,718	32,930	46,344	57,822	5,067	16,765	7,856	406,955
1924	259,706	108,524	151,182	39,997	7,697	6,699	4,621	2,962	42,446	54,497	80,347	6,688	23,165	9,065	429,366
1925	316,825	158,022	158,803	49,566	10,082	5,424	5,377	5,377	46,757	65,499	120,626	7,881	25,298	13,797	517,523
1926	391,328	151,243	240,085	58,962	9,874	9,155	6,079	4,027	52,186	71,413	121,231	8,203	24,298	16,017	621,530
1927	371,322	182,845	188,477	55,356	11,321	10,923	6,582	5,472	55,297	77,815	142,171	8,645	28,782	15,633	606,474
1928	409,430	149,787	259,643	57,267	10,790	10,087	6,698	4,818	58,848	82,511	121,770	9,548	21,129	10,696	653,794
1929	577,202	161,525	415,677	81,584	11,663	11,077	7,166	5,018	65,990	87,789	134,037	9,696	21,148	6,589	857,434
1928:															
Feb.	28,848	12,911	15,937	4,947	1,081	667	581	536	4,052	6,757	8,630	787	1,612	1,276	46,560
Mar.	27,879	10,508	17,371	3,683	775	645	581	269	3,999	5,825	9,690	700	2,750	1,211	47,499
Apr.	20,139	9,335	10,804	3,233	789	630	494	258	3,993	5,040	5,499	736	1,014	1,323	33,810
May	26,483	10,350	16,133	3,091	654	842	494	241	4,943	5,355	10,347	717	2,602	1,135	45,994
June	22,994	16,168	6,826	3,107	963	926	494	451	5,419	5,863	13,655	725	1,399	960	40,788
July	30,481	13,383	17,098	5,129	1,043	905	593	366	5,602	7,566	11,594	698	1,264	873	52,731
Aug.	35,674	15,114	20,560	5,720	398	1,227	593	544	5,668	7,438	11,893	712	1,732	450	56,936
Sept.	29,769	11,239	18,530	4,675	457	938	594	447	4,956	6,536	9,863	969	1,614	494	50,073
Oct.	24,476	12,603	11,873	3,999	864	949	564	457	5,295	7,474	10,124	513	1,399	732	44,243
Nov.	68,135	10,436	57,699	8,005	1,048	772	564	425	4,950	7,902	7,805	943	1,790	623	92,526
Dec.	66,763	11,122	55,641	7,848	1,113	744	565	294	5,120	8,792	10,896	948	2,220	588	94,769
1929:															
Jan.	52,546	13,415	39,131	8,301	1,664	873	600	461	5,640	8,067	11,076	850	2,134	642	79,439
Feb.	47,926	12,103	35,823	7,064	1,117	955	600	495	6,572	7,511	10,884	807	2,104	526	73,952
Mar.	49,448	14,553	34,895	6,583	1,413	758	601	499	5,515	6,620	10,629	658	2,332	786	71,189
Apr.	49,816	11,414	38,402	5,097	727	747	548	306	5,997	6,645	11,321	673	1,950	569	72,982
May	43,960	15,593	28,367	5,723	800	966	548	453	6,264	6,961	13,437	1,059	1,922	733	67,233
June	40,398	14,344	26,054	5,568	1,122	1,061	547	422	5,582	6,693	11,270	757	1,398	548	61,017
July	46,454	15,071	31,383	5,457	974	1,247	641	462	6,422	7,192	13,995	575	1,457	543	70,348
Aug.	50,441	15,469	34,972	6,079	685	993	641	431	4,644	7,298	10,782	1,032	1,563	499	69,619
Sept.	53,484	12,392	41,092	7,993	384	832	640	406	4,708	7,517	10,149	655	1,566	504	76,446
Oct.	47,937	12,516	35,421	8,381	812	1,047	600*	485	4,697	8,295	10,512	893	1,606	445	73,194*
Nov.	46,279	11,204	35,075	6,660	1,065	668	600*	278	4,760	6,711	9,380	771	1,442	400*	67,810*
Dec.	48,513	13,451	35,062	8,683	900	930	600*	320	5,189	8,279	11,102	966	1,674	400*	74,105*
1930:															
Jan.	52,535	11,778	40,762	7,741	1,560	791	600*	386	5,709	7,831	8,920	856	1,837		
Feb.	48,947	12,960	35,987	7,825		847	600*	469	6,900	7,191	11,414	944	1,797		
Mar.													1,674		

(1) Malayan net exports cannot be taken as production, since imported rubber is largely wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 115 tons in 1923, 1,117 in 1924, 3,618 in 1925, 3,263 in 1926, 2,439 in 1927 and 1,437 in 1928. (2) Ceylon Chamber of Commerce statistics until 1926; rubber exported as latex is not included— such shipments were equivalent to 18 tons in 1923, 93 tons 1924, 6 tons 1925, 20 tons in 1926, about ½ ton in 1927, and 1 ton in 1928. (3) Official statistics. (4) Imports into Singapore and Penang. (5) Exports from "Other D.E.I." are chiefly wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 2,342 tons in 1923, 1,008 tons 1924, 2,239 tons 1925, 44 tons in 1926, 84 tons in 1927, and 1,459 tons in 1928. (6) Calculated from official import statistics of principal consuming countries, viz., United States, United Kingdom, France, Germany, Belgium and Netherlands. This figure includes guayule rubber. (7) This total includes the third column for British Malaya, "Gross Exports minus Imports," and all the figures shown for the other territories. *Figure is provisional; final figure will be shown immediately it becomes available.

Net Imports of Crude Rubber into Principal Manufacturing Countries

(Long Tons)

	United States[1]	United Kingdom	France (h)	Germany	Canada (ac)	Japan (da)	Italy	Russia (ee)	Australia (ed)	Belgium (d)	Netherlands	Scandinavia (abcdf)	Spain (g)	Czechoslovakia (abcd)	World Total
1919	236,977	42,671	17,685	5,584	6,395	9,753	9,894	75	1,002	3,995	2,771	3,149	2,418	9	342,378
1920	248,762	56,844	13,885	11,890	11,746	5,297	6,123	62	1,815	3,840	5,510	2,292	2,008	567	370,641
1921	179,678	42,087	15,135	21,920	8,124	21,713	3,906	165	1,014	1,705	1,022	1,279	2,245	569	300,562
1922	296,267	11,724	24,352	27,546	9,207	15,934	6,430	2,493	2,643	172	-3,807	1,778	589	567	395,885
1923	300,372	12,700	27,392	18,519	13,277	15,372	8,489	2,986	1,649	2,184	792	2,528	630	1,128	408,018
1924	317,747	-11,550	30,446	22,727	14,299	19,571	8,764	2,346	3,124	2,688	-807	3,178	944	1,370	414,847
1925	381,815	4,061	32,956	33,937	19,683	11,117	11,412	7,088	4,757	2,930	875	3,149	1,155	1,558	516,493
1926	395,667	84,865	34,240	22,775	20,229	18,125	9,809	6,529	9,021	2,498	2,670	4,046	1,299	1,870	613,643
1927	398,483	60,249	34,271	38,892	26,405	20,521	11,381	12,018	9,490	6,482	636	4,224	2,055	2,672	627,789
1928	404,496	4,846	36,498	37,855	30,447	25,621	12,433	15,134	8,430	7,958	2,243	4,418	3,178	3,138	596,695
1928:															
Jan.	37,120	1,921	1,764	2,485	2,290	1,361	760	755	802	589	52	261	335	376	50,871
Feb.	30,926	3,143	2,526	2,984	2,553	1,243	437	783	616	599	98	307	296	297	46,813
Mar.	36,893	3,179	1,902	3,521	2,989	1,694	763	231	918	816	95	351	497	398	54,247
April	35,663	—2,280	2,204	2,719	1,938	2,334	1,114	1,820	832	575	280	339	304	159	48,001
May	28,660	—5,322	3,297	2,944	2,180	2,288	1,090	3,893	655	746	209	485	220	213	41,558
June	25,143	—3,031	3,597	2,968	2,186	2,102	984	4,111	848	743	133	346	251	182	40,063
July	28,170	—1,374	3,518	3,387	2,692	2,026	1,598	724	591	895	395	294	175	384	43,475
Aug.	28,827	48	3,527	2,744	2,447	1,868	875	632	707	519	316	359	58	94	43,021
Sept.	36,800	4,199	3,524	3,553	2,812	1,887	1,278	20	603	597	345	377	277	235	56,457
Oct.	41,667	—934	3,728	4,386	2,943	3,711	1,049	98	766	696	141	527	250	318	59,346
Nov.	33,846	—3,141	3,278	3,694	2,799	2,150	1,340	689	887	544	31	337	252	282	46,938
Dec.	40,781	8,438	3,633	2,470	2,618	3,002	1,145	1,378	755	639	148	435	263	200	65,905
1929:															
Jan.	53,922	11,951	5,645	4,711	3,759	3,776	1,481	956	1,061	749	218	638	179	525	89,571
Feb.	61,331	5,179	5,001	4,613	2,908	2,727	1,259	684	1,131	627	113	226	115	356	86,275
Mar.	46,391	9,068	4,409	4,586	4,961	2,630	1,515	716	725	931	316	354	80	409	77,091
Apr.	52,447	8,295	4,854	5,351	3,177	2,308	1,407	703	1,518	750	144	956	40	445	82,395
May	48,350	5,112	3,152	3,682	2,937	2,314	1,417	996	1,437	854	201	468	37	277	71,233
June	38,676	4,787	6,814	3,948	3,075	1,593	1,624	695	2,215	672	687	507	24	420	65,737
July	40,914	4,993	4,839	3,559	3,205	2,388	2,023	1,056	2,918	1,039	253	519	30	465	68,801
Aug.	35,207	14,594	4,645	4,082	2,879	3,663	908	700*	724	902	254	429	25	319	69,331*
Sept.	32,171	17,010	3,889	4,691	1,908	3,511	1,224	700*	853	672	253	361	91	477	67,811*
Oct.	35,840	16,111	4,489	3,355	1,821	3,902	1,838	700*	1,125	1,147	278	710	91	201	71,608*
Nov.	40,972	13,141	3,082	3,776	2,709	3,221	1,275	700*	1,453	361	253	595	62	280	71,880*
Dec.	40,488	12,434	4,274	2,921	2,114	2,251	1,198	700*	726	741	52	677			
1930:															
Jan.	44,759	11,106	4,207	3,862	2,842	2,805	910	700*	332	612	209	552			
Feb.	40,718	10,923		3,697	2,250		1,385				188				

a—Including gutta percha. b—Including balata. c—Re-exports not deducted in monthly statistics. d—Including some scrap and reclaimed rubber. e—Official statistics of rubber imports by Soviet Russia. f—Including Norway, Sweden, Denmark and Finland. g—United Kingdom and French exports to Spain except in years prior to 1925. h—French imports have been reduced 12 per cent in order to eliminate imports of gutta percha and to reduce to basis of net weight. [1]United States imports of guayule are not included in this compilation; such imports amounted to 4,305 tons in 1926; to 5,010 tons in 1927; to 3,076 in 1928; and to 1,231 tons in 1929. *Figure is provisional; final figure will be shown immediately it becomes available.

Domestic Production of Miscellaneous Rubber Goods

	Rubber Proofed Fabrics Yards	Rubber Heels Pairs	Rubber Soles Pairs	Mechanical Goods Shipments Dollars
1924	25,020,000	186,279,000	(1)	$48,615,000
1925	23,988,000	206,970,000	16,211,620(2)	64,877,000
1926	19,328,000	183,312,000	12,258,000	76,789,000
1927	37,872,000	201,014,000	27,160,000	68,625,000
1928	41,179,000	235,170,000	37,645,000	69,114,000
1929	50,731,000	232,126,000	34,499,000	74,770,000
1928:				
January	2,177,000	17,632,000	3,431,000	$5,630,000
February	2,575,000	19,181,000	3,628,000	5,838,000
March	2,253,000	22,583,000	3,747,000	6,675,000
April	2,416,000	18,575,000	2,928,000	5,406,000
May	2,744,000	21,597,000	3,519,000	6,274,000
June	2,953,000	18,763,000	3,321,000	6,136,000
July	3,447,000	17,820,000	3,165,000	5,157,000
August	4,613,000	21,289,000	3,461,000	6,306,000
September	4,966,000	21,451,000	2,725,000	5,398,000
October	5,914,000	21,932,000	2,297,000	5,337,000
November	4,173,000	18,686,000	2,649,000	5,201,000
December	2,948,000	15,811,000	2,771,000	5,271,000
1929:				
January	2,823,000	19,975,000	3,576,000	6,033,000
February	3,095,000	18,979,000	2,869,000	6,135,000
March	3,952,000	17,226,000	2,746,000	7,013,000
April	4,000,000	17,256,000	2,601,000	7,035,000
May	4,860,000	19,541,000	2,916,000	7,189,000
June	4,409,000	20,007,000	2,502,000	6,792,000
July	4,260,000	19,315,000	1,295,000	6,306,000
August	5,085,000	23,095,000	2,945,000	6,792,000
September	5,507,000	21,702,000	2,841,000	5,906,000
October	6,116,000	22,386,000	3,502,000	5,887,000
November	4,395,000	17,863,000	3,400,000	4,932,000
December	2,291,000	14,781,000	3,003,000	4,751,000
1930:				
January		15,470,000	3,496,000	5,177,000

(1) Not available; (2) Last 9 months only.
Source: "Survey of Current of Business of the Department of Commerce."

United States Imports of Guayule Rubber and Related Gums

(All quantities in Long Tons)

	Guayule Tons	Guayule Dollars	Balata Tons	Balata Dollars	Jelutong Tons	Jelutong Dollars	Gutta Percha Tons	Gutta Percha Dollars
1919	1,430	760,690	727	937,038	8,332	2,213,964	2,900	1,068,698
1920	758	845,955	1,064	1,260,043	5,672	2,068,501	3,133	1,520,309
1921	53	26,945	814	1,077,859	1,745	351,893	985	333,564
1922	127	57,040	812	978,765	2,385	408,812	818	281,012
1923	1,155	542,227	700	898,524	4,565	853,308	912	375,167
1924	1,356	636,392	464	568,456	6,165	1,237,100	1,408	463,610
1925	3,781	1,803,448	517	574,750	6,749	1,642,531	1,603	629,284
1926	4,305	2,562,096	354	327,213	7,263	3,127,757	1,445	661,156
1927	5,018	2,674,957	582	447,246	7,785	2,448,657	1,494	728,172
1928	3,075	1,755,685	731	430,855	7,552	2,540,059	1,597	777,128
1929	1,221	545,175	728	566,964	8,203	2,458,126	447	167,479
1929:								
July	260	86,175	49	46,440	572	180,065	14	5,807
Aug	190	80,443	58	47,769	575	171,783	—	—
Sept.	107	51,158	38	30,327	918	279,225	—	—
Oct.	200	79,968	58	43,756	636	181,421	—	—
Nov.	125	47,796	13	11,600	583	182,677	49	14,935
Dec.	100	41,328	25	19,955	550	156,939	51	12,095
1930:								
Jan.	150	55,272	28	28,549	509	141,384	—	—
Feb.	75	25,956	52	45,319	367	93,087	—	—

Reclaimed Rubber in the United States

(All Quantities in Long Tons—100% Basis)

Year	Production	Consumption Tons	Consumption % to Crude	Stocks*	Year	Production	Consumption Tons	Consumption % to Crude	Stocks*
1920	86,395	75,297	38.4	.....	1925	132,930	137,105	35.6	13,203
1921	86,725	41,351	24.1	.....	1926	180,582	164,500	45.9	23,218
1922	57,834	54,458	19.3	.....	1927	189,144	178,471	47.6	24,980
1923	74,788	69,534	22.7	.....	1928	203,516	223,000	50.4	24,785
1924	80,079	76,072	22.4	.....	1929	218,954	226,588	48.4	27,464
1928:									
Jan.	14,862	20,140	55.5	21,941	July	17,278	19,070	51.6	17,305
Feb.	15,291	18,670	55.4	20,848	Aug.	19,049	17,890	41.7	15,881
Mar.	17,060	20,680	57.9	19,588	Sept.	18,693	17,795	44.6	17,991
Apr.	15,393	19,280	58.8	19,233	Oct.	17,182	18,420	45.1	17,026
May	18,945	20,215	54.1	18,137	Nov.	18,245	18,380	49.1	22,399
June	18,781	18,140	48.2	18,709	Dec.	17,728	14,320	45.9	24,785
1929:									
Jan.	18,685	21,068	49.1	24,394	July	18,387	20,236	48.7	19,679
Feb.	18,094	19,829	47.7	23,305	Aug.	19,787	18,230	47.6	22,309
Mar.	19,984	20,867	46.7	22,076	Sept.	18,660	17,071	49.2	24,984
Apr.	19,899	22,435	47.3	20,680	Oct.	18,865	18,744	53.8	25,117
May	20,385	23,176	47.1	19,479	Nov.	14,363	15,330	55.4	26,080
June	18,416	18,141	42.0	17,980	Dec.	13,429	11,581	49.0	27,464
1930:									
Jan.	15,010	17,454	47.6	24,241	July	.....	.....	.....	.....
Feb.	15,846	14,559	44.5	24,243	Aug.	.....	.....	.....	.....
Mar.	17,400	15,241	42.2	24,415	Sept.	.....	.....	.....	.....
Apr.	.....	.....	.....	.....	Oct.	.....	.....	.....	.....
May	.....	.....	.....	.....	Nov.	.....	.....	.....	.....
June	.....	.....	.....	.....	Dec.	.....	.....	.....	.....

*Stocks on hand at the end of month or year. Exports of reclaimed rubber, not shown in this table, amounted to 8,540 tons in 1927, 9,577 tons in 1928, and 12,369 tons in 1929.

REVIEW DESK

Books, New Publications, Catalogues, Etc.

THE IMPROVEMENT OF YIELD IN HEVEA BRAZILIENSIS. By Colonel F. Summers. Published by Kelly & Walsh, Ltd., Singapore, F.M.S. 1930. 12s 6d.

The past decade has seen many efforts toward the improvement of rubber growing, as the steady increase in plantation yield per acre testifies. Colonel Summers has had long experience in this field, and his work is authoritative. The introduction of the budding method is described in the first section of the volume, and the following chapters trace the further development of this method and explain it fully.

ACCELERATOR 808. Bulletin No. 10 in the "Chemicals for the Rubber Industry" Series of E. I. du Pont de Nemours & Company, Rubber Chemicals Section, Wilmington, Del. 1930. 28 pp. For free distribution.

Du Pont Accelerator 808 is an aldehyde-amine condensation product which differs from other accelerators of that class in that it imparts a very high modulus to compounds that contain it. After treating on its physical and chemical properties, its critical temperature and factory handling, this bulletin discusses its use in tires, tubes, hose, belting, heels, soles, insulated wire, hard rubber and miscellaneous molded goods, presenting formulas and describing the effect upon it of zinc oxide, fatty acids, pigments and fillers, and reclaimed rubber.

INDUSTRIAL STRUCTURE OF NEW ENGLAND. By Dr. Charles E. Artman. Published by the Government Printing Office, Washington, D. C. 1930. 591 pp. $1.30.

Prepared as a part of the New England survey through extensive field work by the Department of Commerce in co-operation with the New England Council, this volume is a complete inventory of the industries and resources of that section of the country and an interpretation of its economic background. The experiences of 5,000 manufacturers are analyzed and digested, and pertinent facts are presented regarding the boot and shoe, textile, and rubber industries.

SAFETY ADVERTISING. Published by the Policyholders Service Bureau, Metropolitan Life Insurance Company, 1 Madison Avenue, New York City. 1930. 16 pp. For free distribution.

Safety advertising within industry is generally regarded as one of the most practical accident prevention measures, since it provides a medium whereby management may address supervisors and workmen repeatedly concerning the need for safe practices. This study discusses the principles, form, appeal and media to be used in this type of publicity and is illustrated with photographs of effective bulletin board and blackboard displays.

PREPARING SHIPMENTS TO CANADA. Published by the Government Printing Office, Washington, D. C. 1930. $.10.

Efficient exporting must of necessity be based on accurate knowledge of the various rules and regulations imposed by foreign governments in connection with the preparation of shipments and documents. In view of the importance of the Dominion as an outlet for American rubber goods and the fact that many exporters make their first venture in this field, this handbook on Canada is deemed of particular value. Specimen forms of invoices approved by the Canadian government are included.

SOVIET ECONOMIC DEVELOPMENT AND AMERICAN BUSINESS. By Saul G. Bron. Published by Horace Liveright, Inc., 61 West 48th Street, New York City. 1930. 166 pp. $1.50.

Under one of the most remarkable plans for national industrial development ever conceived, the Soviet Republics have planned to invest capital to the extent of $33,000,000,000 between 1928 and 1933. The industrial program for the first year was exceeded by a substantial margin, and as an incident of that growth Soviet-American trade swelled to a total of $155,000,000 in 1928-29, more than three times the pre-war figure. The technical assistance contracts concluded with the Seiberling Rubber Company and the Akron Rubber Reclaiming Company by the Resinotrest are well known, and other such agreements are being made with many leading American industrial firms. The writer of this volume presents the story of Soviet growth concisely, but with full tabular data appended, and concludes that American trade interests would be best served by recognition of Russia and the establishment of normal relations.